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Teacher Supply and Demand in Degree-Granting Institutions, 1954-55

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FOREWORD

IN THE ebb and flow of supply and demand, there may be a plentiful supply or a severe shortage of qualified persons at any given time to carry out certain activities desired by a society. There is abundant evidence today that America's most critical shortage is that of trained manpower. The development of our technology—the proliferation of tasks of ever-increasing specialization—has outrun production of adequately trained personnel in many fields.

Just now this shortage is dramatized by the demands for engineers and scientists because of the obvious relation of these fields to our national defense. But it is also clear that America's employers will be plagued with an insufficient number of trained specialists in many aspects of our national life in the years immediately ahead. And, unhappily, it is clear that one of the most critical shortages is in the educational system at all levels.

In recent years we have learned much about the trends and dimensions of the shortage of qualified elementary- and high-school teachers. The annual NEA survey of this problem, now in its ninth year, brings to light many of the basic facts. To date, however, no parallel body of information concerning the needs of higher education has been assembled. Altho college and university leaders are alert to the impending expansion in enrolments and are actively studying the problem of needed instructional personnel, many of the needed facts are wanting.

The investigation reported in this bulletin was designed to reveal some of the facts needed to support future planning by those having firsthand responsibility for staffing the institutions of higher education. It is a pioneer effort to measure the need for new instructional personnel, field by field. The study also has sought to bring to light certain characteristics of the whole corps of teachers now at work in colleges and universities.

Of necessity, such a study is no more than a beginning. If it has prepared the way for more comprehensive investigations, it will have served a good purpose. The problem stretches out before us, far beyond present horizons. Without question, the competition for qualified instructional personnel—teachers of all subjects and at all levels—will become sharper as enrolments expand. And no easy or early solution is in sight.

Any new study entails the search for information not readily available. Busy officials on campuses all across the nation have been generous with their time in the effort to assemble the data sought by the NEA Research Division. We are deeply grateful to them for this splendid cooperation.

WILLIAM G. CARR, *Executive Secretary,*
National Education Association.

I. Introduction

Can institutions of higher education in America build the instructional staffs which future enrolments will inevitably require? How can future needs be determined? On what bases can meaningful predictions be made? From what sources will new teachers come? What will be the nature and extent of their preparation? Will the total available new teachers be distributed among the teaching fields according to the needs? Will the present ratio of men to women be maintained? And what will be the competition, among the different types of institutions and by other occupations, for the qualified candidates in each field?

A struggle with these questions stands high on the "must" list of every college and university administrator who seeks to anticipate problems. Harassed as he is with the growing need for more funds, more buildings, and more services, and with a clear picture before him of the "impending tide" of students, he cannot for a moment take his eye off the central purpose of all education—effective classroom instruction. Where to obtain and how to retain qualified instructional staff in the required numbers may well be the greatest single problem to confront him in the next decade.

A vast expansion of enrolments in higher education institutions is inevitable for at least these two reasons: (a) the *total number* of 18- thru 21-year-olds will increase each year for the next 18 years, as indicated by records now available; (b) the *percent* of this group who wish to attend college is likely to increase, thus compounding the problem of gross numbers. And only a little less baffling is the probability that this enlarged number will require an even greater diversification of offerings as colleges seek to prepare these young people for the increasing complexities of occupational life.

The percent of the college-age group actually to attend college is, of course, determined by many factors. Certainly the availability of attractive employment at the time of high-school graduation is a potent one. The state of our national defense is another. But the devotion of the American people to the ideal of education for all, up to the capacity of each youth, is strengthened with the passing of each year. The question facing educational leadership, then, is not whether enrolments will increase but, rather, how to prepare for the increase.

And in pondering the question, Where will qualified instructional staff members come from? it matters little whether a particular institution intends to restrict its student body to its present size, as some do, or whether the institution foresees its future growth to be consonant with the expanding demands for admission. The number of qualified candidates for college teaching positions will be limited, and all institutions will compete, up to the limit of their resources, for this limited number.

Need for the Study

As higher education faces the future task of staffing its classrooms with qualified personnel, many of the needed basic facts are lacking. Future plans, to be effective, must be undergirded by a clear picture of existing conditions. Only then can a projection of future needs be built. Unlike elementary and secondary education, however, where national studies of the supply of and demand for teachers have been conducted annually for the past eight years,[1] higher education has little or no backlog of information concerning its instructional staff needs.

A study of the NEA Research Division reported a year ago[2] brought to light some rather startling information concerning the incomplete state of the preparation of many full-time staff members now in service. The same study revealed the fact that, while degree-granting institutions readily employ considerable numbers of teachers whose preparation is meager in terms of degrees held, a large number of these institutions make no provision for assisting their teachers to improve their academic status.

But an up-to-date picture of the present staff—showing such elementary facts as sex, age, and distribution among the teaching fields

[1] The annual National Teacher Supply and Demand Report is prepared by the NEA Research Division and published in the March issue of the *Journal of Teacher Education*.

[2] National Education Association, Research Division. "Instructional Staff Practices and Policies in Degree-Granting Institutions, 1953-54." *Research Bulletin* 32: 165; December 1954. Table 5.

—is lacking. Similarly, little is known about the sources of new college teachers and their preparation. A college administrator knows, of course, how many new teachers he has added to his staff and for what fields of instruction, but where can he learn how many candidates for a certain type of position were sought the same year by all institutions (total demand) so that this demand may be compared with the total available supply?

There is available, of course, a concise, up-to-date report on the total number of recipients of master's and doctor's degrees,[3] field by field, but little is known about the occupational aspirations of these potential college teachers. For example, the number of the PhD recipients in chemistry may or may not have any meaningful relation to the number of available candidates for positions as teachers of college chemistry classes.

Again, it is known that the salary schedules in certain types of higher institutions are substantially higher than in others. It seems fair to assume, therefore, that there is a steady shift of successful teachers from these latter institutions to the ones paying higher salaries. While such procedure may be expected, where will it leave the less favored institution in the oncoming era of keener competition?

Obviously, the existing relation between supply and demand must be viewed in new terms if the instructional staff of higher education is to be increased to meet the expected demands during the next 15 years. And thus the sharpened need for basic facts becomes more apparent.

Purpose of the Study

This is the third in a series of Research Division studies of selected problems of general interest among degree-granting institutions.[4] One purpose of the study is to provide employing officials with an overview of instructional staff needs. To this end it reports by teaching field, by sex, and by amount of preparation the number of new full-time teachers employed during 1953-54 and 1954-55, together with an indication of the sources from which these new teachers came.

A second purpose is to provide a description of the total full-time instructional staff now in service, by sex and by teaching field. A third purpose is to show thru an age distribution the rate at which members of the present staff will arrive at retirement age. A fourth purpose is to present an evaluation of the current supply-demand situation as viewed by employing officials in search of new appointees.

Finally, it is a purpose of this study to provide a basis for more concise counseling of students, both graduate and undergraduate, who are interested or who may become interested in college and university teaching. For them it is important to know the number and kinds of opportunities open to persons outside the corps of full-time college teachers. These students want, and have the right to know, how many teaching positions in *what fields* of instruction and in *what types* of institutions are open to candidates at the *various levels* of preparation.

Plan of the Study

This study is limited to degree-granting institutions. It excludes (a) junior colleges; (b) colleges and universities staffed completely by dedicated members of religious groups who are not employed in the usual way;[5] and (c) special types of institutions, such as theological seminaries, special schools of art, chiropody, design, music, optometry, pharmacy, textiles, and all others in which the regularly employed instructional personnel is likely to be limited to special fields. Since this study is a pioneer effort in this area of investigation, it seemed logical to restrict it to degree-granting institutions in the belief that a more accurate definition of the teaching staff could be applied and in view of the greater likelihood that comparable data could be assembled.

To the degree-granting institutions it was suggested that such units as schools of dentistry, medicine, and law be omitted from the report if numerous members of the teaching staffs

[3] U. S. Department of Health, Education, and Welfare, Office of Education. *Earned Degrees Conferred by Higher Educational Institutions*. Issued annually.

[4] The preceding studies are: National Education Association, Research Division. "Instructional Staff Practices and Policies in Degree-Granting Institutions, 1953-54." *Research Bulletin* 32: 159-214; December 1954.

National Education Association, Research Division. "Salary-Schedule Provisions or Salaries Paid in Degree-Granting Institutions, 1952-53." *Research Bulletin* 31: 135-67; December 1953.

[5] Numerous among the participating institutions are colleges and universities in which both lay and dedicated teachers are employed.

TABLE 1.—GROUP DESIGNATION OF EACH TYPE OF INSTITUTION AS USED IN THIS REPORT

Group designation	Type of institution
1	2
I	Public universities and land-grant colleges
II	Nonpublic universities
III	State colleges
IV	Teachers colleges
	Nonpublic colleges (by enrolment):
V	1,000 and over
VI	500–999
VII	Under 500

of these schools are not usually employed on a full-time basis. In other words, the effort was made to limit this study to staff members completely in the employ of the reporting institution.

In the presentation of the findings of this study the reporting institutions are grouped as follows: publicly controlled universities and land-grant colleges, nonpublicly controlled universities, state colleges, teachers colleges, and nonpublicly controlled colleges. This last group is subdivided into three subgroups: those with more than 1000 full-time enrollees, those with 500-999, and those with fewer than 500. These seven groups of institutions will be referred to in this text by Roman numerals as shown in Table 1. The use of these group designations will avoid much repetition of cumbersome titles.

Definition of Terms

The terms *colleges* and *universities* refer to internal organization rather than to legal title. Single-unit institutions are reported in this bulletin as colleges altho the word *university* may appear in their official names. Complex institutions are classified as universities even tho the word *college* is in their official titles.

The convenient term *teacher* is used to include instructional personnel of all ranks. Administrators are included only if they ordinarily carry at least a half-time teaching load.

The *regular full-time teaching staff* consists of all college and university teachers who are employed on a continuing basis; this means they are on tenure or in line to earn tenure. It includes teachers whose teaching loads are reduced for research and other approved assignments, as well as members of the full-time professional library staff, whether or not the latter may be engaged in teaching. It does not include elementary- and high-school teachers in a laboratory school unless they devote at least half time to the instruction or supervision of college students.

A *new* teacher is one who joins the regular full-time teaching staff but *who was not a member of a regular college or university full-time teaching staff anywhere the preceding year.* The *new* teacher may have been a former college teacher, a graduate student, a high-school teacher, a superintendent, a businessman, a housewife, a returning soldier—anything—but not a member of a regular full-time college teaching staff. The whole point of this study rests upon a clear understanding of this definition of a *new* teacher; it is only such a *new* teacher who *satisfies a demand* for a person to come from outside the total body of regular full-time college teachers the preceding year.

A *temporary full-time teacher* may be a substitute for a regular teacher on leave or ill, or a fill-in pending a regular appointment, but both employer and employee understand that termination of employment is foreseen.

Coverage of the Study

This study is broadly representative of higher education in America. Just over two of every three institutions addressed (67.8 percent) found it possible to prepare and return the inquiry form before the tabulations were started.[6] Of the multiple-unit institu-

TABLE 2.—NUMBER OF DEGREE-GRANTING INSTITUTIONS INVITED TO PARTICIPATE, AND NUMBER AND PERCENT REPLYING

Type of institution	Number invited to participate	Number replying	Percent replying
1	2	3	4
I. Public universities and land-grant colleges	112	82	73.2%
II. Nonpublic universities	110	56	50.9
III. State colleges	131	103	78.6
IV. Teachers colleges	118	94	79.7
Nonpublic colleges (by enrolment):			
V. 1,000 and over	77	50	64.9
VI. 500–999	173	112	64.7
VII. Under 500	271	176	64.9
All institutions	992	673	67.8%

[6] A considerable number of responses arrived too late to be included in this report.

tions 62.2 percent responded while of the single-unit institutions 69.5 percent did so. The number of each type of institution invited to participate and the number and percent which responded are shown in Table 2.

A further indication of the coverage of this study is the enrolment of 946,674 full-time college students in the participating institutions. A breakdown of this enrolment by type of institution is shown in Table 3.

The total number of regular full-time teachers in the 673 participating institutions is 63,751. For all institutions the range in number of regular full-time teachers is from 2 to 2898; the median is 48. One-fourth of the reporting institutions have no more than 30, while one-fourth have as many as 99 each. In Group I the median staff consists of 274 full-time teachers; the range is from 43 to 2898. In Group II the median is 134 full-time teachers; the range is from 17 to 860. Among single-unit institutions the median ranges from 25 to 73. These details for all types of institutions are shown in Table 4.

TABLE 3.—ENROLMENT OF FULL-TIME STUDENTS OF COLLEGE GRADE IN THE 673 PARTICIPATING INSTITUTIONS, 1954-55

Item	All institutions	Type of institution						
		Public universities and land-grant colleges	Nonpublic universities	State colleges	Teachers colleges	Nonpublic colleges (by enrolment)		
						1,000 and over	500-999	Under 500
1	2	3	4	5	6	7	8	9
Number of enrollees	946,674	388,625	151,719	135,441	78,938	65,669	73,782	52,500
Number of institutions reporting	673	82	56	103	94	50	112	176

TABLE 4.—RANGE IN NUMBER OF REGULAR FULL-TIME TEACHERS IN 673 DEGREE-GRANTING INSTITUTIONS, 1954-55

Range in number of full-time teachers per institution	All institutions	Type of institution						
		Public universities and land-grant colleges	Nonpublic universities	State colleges	Teachers colleges	Nonpublic colleges (by enrolment)		
						1,000 and over	500-999	Under 500
1	2	3	4	5	6	7	8	9
Men								
Lowest	1	31	16	11	1	20	8	2
Q_1	19	143	64	30	18	50	23	12.5
Median	34	215.5	117.5	46	27	61	32	16
Q_3	72	406	175	77	47	75	41.5	21
Highest	2,555	2,555	802	249	141	186	99	58
Women								
Lowest	0	0	0	0	0	0	0	0
Q_1	7	28	3	12	12	2	6	4
Median	13	47	14.5	19	17.5	11	11	7
Q_3	25	82	32	33	25	22	16	12
Highest	343	343	111	131	103	101	49	33
Both men and women								
Lowest	2	43	17	14	7	22	10	2
Q_1	30	183	77.5	46	30	62	36	21
Median	48	273.5	133.5	69	46.5	73	44	25
Q_3	99	472	213	103	68	105	57.5	32
Highest	2,898	2,898	860	334	237	187	99	64
Number of institutions reporting	673	82	56	103	94	50	112	176

II. Status of Present Teaching Staff

The central purpose of this study is to provide a background for the more accurate prediction of future demands for instructional personnel by colleges and universities. To that end certain facts concerning existing conditions have been brought to light in the belief that these facts are essential bases for concise planning. The effort has been directed to the elements not emphasized in other recent studies of the problem.

The first step was to raise certain questions concerning the regular full-time staff now in service, such as sex distribution, preparation, distribution among the teaching fields, age, and student-teacher ratio. These facts are provided as a point of departure for studies of future needs.

Division of Full-Time Staff by Sex

College teaching is not exclusively a man's job. In teachers colleges more than one-third (36.8 percent) of the regular full-time teachers are women. In the small nonpublic colleges the division is almost exactly one woman to two men (33.5 percent). In the nonpublic universities, at the other extreme, women comprise only 13.7 percent of the total. On the average in all types of institutions, just over 1 teacher in 5 (21.8 percent) is a woman. Table 5 shows the distribution of 63,751 full-time teachers by type of institution.

As might be expected, the ratio of men to women varies widely among the teaching fields. In such fields as engineering (99.5 percent), agriculture (95.9 percent), and vocational and industrial arts (93.1 percent) the predominance of men is taken for granted. In a number of other fields, however, the nature of the subjectmatter would not seem to suggest so strongly that it is exclusively a man's job.

These facts are shown in Table 6: Among college teachers of the physical sciences, 94.0 percent are men; in the social sciences, 89.3 percent; in psychology, 86.6 percent; in mathematics, 85.8 percent; in the biological sciences, 85.1 percent; in fine arts, 73.9 percent; in foreign languages, 72.2 percent; and in English, 71.3 percent. Only in home economics and in library science are women in the majority, with 96.4 and 71.5 percent.

The percent of men in each teaching field, by type of institution, is shown in Table 7.

The distribution of full-time teachers by specific field of teaching is shown in Table 9.

Distribution by Teaching Fields

Table 8 shows the distribution of the full-time teachers in service in 1954-55 by general field of teaching and by type of institution.

TABLE 5.—NUMBER AND SEX DISTRIBUTION OF REGULAR FULL-TIME TEACHERS BY TYPE OF INSTITUTION IN 673 INSTITUTIONS, 1954-55 [a]

Type of institution [b]	Number of teachers	Percent men	Percent women
1	2	3	4
Group I	26,716	83.4%	16.6%
Group II	9,241	86.3	13.7
Group III	8,520	70.5	29.5
Group IV	5,211	63.2	36.8
Group V	4,266	79.6	20.4
Group VI	5,138	74.4	25.6
Group VII	4,659	66.5	33.5
All groups	63,751	78.2%	21.8%

[a] For this information by type of institution, see Table 7.
[b] For description of institutions according to Group, see Table 1, page 131.

TABLE 6.—NUMBER AND SEX DISTRIBUTION OF REGULAR FULL-TIME TEACHERS BY GENERAL FIELD OF TEACHING IN 673 DEGREE-GRANTING INSTITUTIONS, 1954-55

General field of teaching	Total number of teachers	Percent	
		Men	Women
1	2	3	4
Agriculture	2,797	95.9%	4.1%
Biological sciences	3,760	85.1	14.9
Business and commerce	3,293	79.8	20.2
Education	4,759	63.1	36.9
Engineering	4,440	99.5	0.5
English	5,302	71.3	28.7
Fine arts	6,854	73.9	26.1
Foreign languages	3,290	72.2	27.8
Geography	499	84.2	15.8
Health sciences	2,371	67.3	32.7
Home economics	1,544	3.6	96.4
Industrial and vocational arts	923	93.1	6.9
Journalism	391	91.8	8.2
Law	544	98.3	1.7
Library science	1,376	28.5	71.5
Mathematics	2,567	85.8	14.2
Philosophy	891	95.1	4.9
Physical and health education	3,404	61.5	38.5
Physical sciences	5,168	94.0	6.0
Psychology	1,586	86.6	13.4
Religion	897	92.6	7.4
Social sciences	6,938	89.3	10.7
Others	157	61.1	38.9
All fields of teaching	63,751	78.2%	21.8%

TABLE 7.—NUMBER OF REGULAR FULL-TIME TEACHERS AND PERCENT WHO ARE MEN IN EACH GENERAL FIELD OF TEACHING, BY TYPE OF INSTITUTION, IN 673 DEGREE-GRANTING INSTITUTIONS, 1954-55

General field of teaching	Public universities and land-grant colleges		Nonpublic universities		State colleges		Teachers colleges		Nonpublic colleges (by enrolment)					
									1,000 and over		500–999		Under 500	
	Number of teachers	Percent men	Number of teachers	Percent men	Number of teachers	Percent men	Number of teachers	Percent men	Number of teachers	Percent men	Number of teachers	Percent men	Number of teachers	Percent men
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Agriculture	2,403	95.2%	11	100.0%	301	100.0%	31	100.0%	20	95.0%	12	100.0%	19	100.0%
Biological sciences	1,892	89.3	396	87.9	447	85.0	251	79.3	210	73.3	308	81.5	256	69.9
Business and commerce	1,314	87.2	601	90.5	572	67.5	187	63.1	172	84.9	257	68.1	190	59.5
Education	1,555	68.3	465	75.9	1,007	60.1	1,007	52.0	152	67.8	279	62.7	294	62.2
Engineering	2,712	99.5	1,035	99.6	334	99.4	8	100.0	230	99.6	70	100.0	51	96.1
English	1,808	78.5	771	83.4	750	58.9	517	59.4	461	75.9	530	68.1	465	55.3
Fine arts	2,214	82.1	761	81.5	1,062	68.4	801	63.7	504	75.0	705	70.6	807	63.8
Foreign languages	1,119	81.5	606	80.5	265	56.6	119	51.3	385	71.4	416	67.1	380	55.3
Geography	208	93.8	32	90.6	99	82.8	111	69.4	24	70.8	11	81.8	14	78.6
Health sciences	1,687	75.6	423	61.2	59	28.8	37	29.7	50	35.0	72	15.3	43	9.3
Home economics	749	4.1	78	.....	317	2.2	151	7.3	67	10.4	82	.....	100	.....
Industrial and vocational arts	306	90.5	44	81.8	255	98.0	218	93.6	59	98.3	25	80.0	16	87.5
Journalism	225	94.2	53	96.2	62	87.1	14	85.7	9	100.0	17	88.2	11	54.5
Law	329	98.5	173	97.7	13	100.0	.....	.....	20	100.0	5	100.0	4	100.0
Literary science	415	33.0	137	35.8	281	28.8	216	22.2	69	24.6	144	24.3	114	21.9
Mathematics	953	86.4	444	92.6	372	82.3	191	77.0	204	89.7	221	87.3	182	76.4
Philosophy	206	97.6	252	96.0	62	87.1	12	83.3	116	92.2	118	97.5	125	94.4
Physical and health education	1,113	62.4	328	66.2	640	58.4	481	54.7	230	65.7	322	68.0	290	60.0
Physical sciences	2,071	96.2	967	96.3	647	94.4	271	93.0	428	89.7	440	91.6	344	83.1
Psychology	628	91.9	266	89.1	155	80.0	118	80.5	121	86.0	164	83.5	134	74.6
Religion	35	100.0	207	98.6	8	75.0	1	.....	165	93.9	242	90.9	239	88.3
Social sciences	2,650	90.6	1,181	92.6	810	87.0	469	86.1	558	89.8	689	88.5	581	82.6
Others	124	50.8	10	100.0	2	100.0	.....	.....	12	100.0	9	100.0	.....	.....
Total	26,716	83.4%	9,241	86.3%	8,520	70.5%	5,211	63.2%	4,266	79.6%	5,138	74.4%	4,659	66.5%

TABLE 8.—DISTRIBUTION OF REGULAR FULL-TIME TEACHERS BY GENERAL FIELDS OF TEACHING IN 673 DEGREE-GRANTING INSTITUTIONS, 1954-55

General field of teaching	All institutions		Type of institution													
			Public universities and land-grant colleges		Nonpublic universities		State colleges		Teachers colleges		Nonpublic colleges (by enrolment)					
											1,000 and over		500–999		Under 500	
	Number of teachers	Percent of total	Number of teachers	Percent of total	Number of teachers	Percent of total	Number of teachers	Percent of total	Number of teachers	Percent of total	Number of teachers	Percent of total	Number of teachers	Percent of total	Number of teachers	Percent of total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Agriculture	2,797	4.4%	2,403	9.0%	11	0.1%	301	3.5%	31	0.6%	20	0.5%	12	0.2%	19	0.4%
Biological sciences	3,760	5.9	1,892	7.1	396	4.3	447	5.3	251	4.8	210	4.9	308	6.0	256	5.5
Business and commerce	3,293	5.2	1,314	4.9	601	6.5	572	6.7	187	3.6	172	4.0	257	5.0	190	4.1
Education	4,759	7.5	1,555	5.8	465	5.0	1,007	11.8	1,007	19.3	152	3.6	279	5.4	294	6.3
Engineering	4,440	7.0	2,712	10.2	1,035	11.2	334	3.9	8	0.2	230	5.4	70	1.4	51	1.1
English	5,302	8.3	1,808	6.8	771	8.3	750	8.8	517	9.9	461	10.8	530	10.3	465	10.0
Fine arts	6,854	10.8	2,214	8.3	761	8.2	1,062	12.5	801	15.4	504	11.8	705	13.7	807	17.3
Foreign languages	3,290	5.2	1,119	4.2	606	6.6	265	3.1	119	2.3	385	9.0	416	8.1	380	8.2
Geography	499	0.8	208	0.8	32	0.3	99	1.2	111	2.1	24	0.5	11	0.2	14	0.3
Health sciences	2,371	3.7	1,687	6.3	423	4.6	59	0.7	37	0.7	50	1.2	72	1.4	43	0.9
Home economics	1,544	2.4	749	2.8	78	0.8	317	3.7	151	2.9	67	1.6	82	1.6	100	2.1
Industrial and vocational arts	923	1.4	306	1.1	44	0.5	255	3.0	218	4.2	59	1.4	25	0.5	16	0.3
Journalism	391	0.6	225	0.8	53	0.6	62	0.7	14	0.3	9	0.2	17	0.3	11	0.2
Law	544	0.9	329	1.2	173	1.9	13	0.2	.....	.....	20	0.5	5	0.1	4	0.1
Library science	1,376	2.1	415	1.5	137	1.5	281	3.3	216	4.1	69	1.6	144	2.8	114	2.5
Mathematics	2,567	4.0	953	3.6	444	4.8	372	4.4	191	3.7	204	4.8	221	4.3	182	3.9
Philosophy	891	1.4	206	0.8	252	2.7	62	0.7	12	0.2	116	2.7	118	2.3	125	2.7
Physical and health education	3,404	5.3	1,113	4.2	328	3.6	640	7.5	481	9.2	230	5.4	322	6.3	290	6.2
Physical sciences	5,168	8.1	2,071	7.8	967	10.5	647	7.6	271	5.2	428	10.0	440	8.6	344	7.4
Psychology	1,586	2.5	628	2.3	266	2.9	155	1.8	118	2.3	121	2.8	164	3.2	134	2.9
Religion	897	1.4	35	0.1	207	2.2	8	0.1	1	[a]	165	3.9	242	4.7	239	5.1
Social sciences	6,938	10.9	2,650	9.9	1,181	12.8	810	9.5	469	9.0	558	13.1	689	13.4	581	12.5
Others	157	0.2	124	0.5	10	0.1	2	[a]	.....	.....	12	0.3	9	0.2	.....	.....
All fields of teaching	63,751	100.0%	26,716	100.0%	9,241	100.0%	8,520	100.0%	5,211	100.0%	4,266	100.0%	5,138	100.0%	4,659	100.0%

[a] Less than 1/10 of 1 percent.

TABLE 9.—DISTRIBUTION OF FULL-TIME TEACHERS, BY SPECIFIC TEACHING FIELDS AND BY SEX, IN 673 DEGREE-GRANTING INSTITUTIONS, 1954-55

Specific field of teaching	Total number of teachers	Percent distribution by field of teaching	Men teachers		Women teachers	
			Number	Percent	Number	Percent
1	2	3	4	5	6	7
Agriculture	2,797	4.4%	2,681	95.9%	116	4.1%
Animal husbandry	434	0.7	432	99.5	2	0.5
Forestry	266	0.4	264	99.2	2	0.8
All other and unspecified	2,097	3.3	1,985	94.7	112	5.3
Biological sciences	3,760	5.9	3,201	85.1	559	14.9
Anatomy	149	0.2	129	86.6	20	13.4
Bacteriology	228	0.4	193	84.6	35	15.4
Biochemistry	141	0.2	133	94.3	8	5.7
Biology	992	1.5	817	82.4	175	17.6
Botany	488	0.8	420	86.1	68	13.9
Entomology	151	0.2	150	99.3	1	0.7
Physiology	182	0.3	131	72.0	51	28.0
Zoology	618	1.0	532	86.1	86	13.9
All other and unspecified	811	1.3	696	85.8	115	14.2
Business and commerce	3,293	5.2	2,628	79.8	665	20.2
Accounting	967	1.5	869	89.9	98	10.1
All others	2,326	3.7	1,759	75.6	567	24.4
Education	4,759	7.5	3,005	63.1	1,754	36.9
Engineering	4,440	7.0	4,417	99.5	23	0.5
Aeronautical	131	0.2	131	100.0	0	0.0
Chemical	329	0.5	326	99.1	3	0.9
Civil	752	1.2	752	100.0	0	0.0
Electrical	835	1.3	831	99.5	4	0.5
Mechanical	994	1.6	991	99.7	3	0.3
All other and unspecified	1,399	2.2	1,386	99.1	13	0.9
English	5,302	8.3	3,779	71.3	1,523	28.7
Fine arts	6,854	10.8	5,064	73.9	1,790	26.1
Architecture	334	0.5	323	96.7	11	3.3
Music	3,247	5.1	2,360	72.7	887	27.3
Speech and dramatics	1,720	2.7	1,288	74.9	432	25.1
All others and unspecified	1,553	2.5	1,093	70.4	460	29.6
Foreign languages	3,290	5.2	2,375	72.2	915	27.8
Classical	419	0.7	320	76.4	99	23.6
French	987	1.5	647	65.6	340	34.4
German	690	1.1	552	80.0	138	20.0
Spanish	764	1.2	523	68.5	241	31.5
Russian	69	0.1	52	75.4	17	24.6
All other and unspecified	361	0.6	281	77.8	80	22.2
Geography	499	0.8	420	84.2	79	15.8
Health sciences	2,371	3.7	1,596	67.3	775	32.7
Dentistry	220	0.3	202	91.8	18	8.2
Medicine	709	1.1	629	88.7	80	11.3
Nursing	570	0.9	9	1.6	561	98.4
Optometry	34	0.1	33	97.1	1	2.9
Pharmacy	267	0.4	249	93.3	18	6.7
Public health	97	0.2	53	54.6	44	45.4
Veterinary medicine	218	0.3	212	97.2	6	2.8
All other and unspecified	256	0.4	209	81.6	47	18.4
Home economics	1,544	2.4	56	3.6	1,488	96.4
Industrial and vocational arts	923	1.4	859	93.1	64	6.9
Journalism	391	0.6	359	91.8	32	8.2
Law	544	0.9	535	98.3	9	1.7
Library science	1,376	2.1	392	28.5	984	71.5
Mathematics	2,567	4.0	2,202	85.8	365	14.2
Philosophy	891	1.4	847	95.1	44	4.9
Physical and health education	3,404	5.3	2,092	61.5	1,312	38.5
Physical sciences	5,168	8.1	4,859	94.0	309	6.0
Astronomy	68	0.1	58	85.3	10	14.7
Chemistry	2,445	3.8	2,241	91.7	204	8.3
Geology	538	0.9	523	97.2	15	2.8
Metallurgy	84	0.1	84	100.0	0	0.0
Meteorology	58	0.1	58	100.0	0	0.0
Physics	1,657	2.6	1,607	97.0	50	3.0
All other and unspecified	318	0.5	288	90.6	30	9.4
Psychology	1,586	2.5	1,374	86.6	212	13.4
Religion	897	1.4	831	92.6	66	7.4
Social sciences	6,938	10.9	6,195	89.3	743	10.7
Anthropology	139	0.2	119	85.6	20	14.4
Economics	1,576	2.5	1,499	95.1	77	4.9
History	2,160	3.4	1,911	88.5	249	11.5
International relations	56	0.1	52	92.9	4	7.1
Political science	1,066	1.7	1,001	93.9	65	6.1
Sociology	1,112	1.7	971	87.3	141	12.7
All other and unspecified	829	1.3	642	77.4	187	22.6
Others	157	0.2	96	61.1	61	38.9
Total	63,751	100.0%	49,863	78.2%	13,888	21.8%

Of the total number of teachers reported, social sciences leads with 6938, and fine arts is second with 6854; these groups are 10.9 and 10.8 percent, respectively, of the total. At the other extreme, law, journalism, and geography have less than 1 percent each, and industrial and vocational arts, philosophy, and religion have 1.4 percent each.

When the full-time staffs of the different types of institutions are examined, wide variations in the distribution of teachers among the fields are found. In Group I, engineering claims the largest number (10.2 percent), followed by social sciences (9.9 percent). In Group II, social sciences has 12.8 percent, engineering 11.2 percent, and physical sciences 10.5 percent.

Among the single-unit institutions different distributions of the full-time teachers are found. In Group III, fine arts leads with 12.5 percent. Next comes education with 11.8 percent, then social sciences with 9.5 percent. In Group IV, as might be expected in institutions emphasizing the preparation of teachers, education takes almost one-fifth (19.3 percent) of the staff. Fine arts, reflecting the emphasis upon music and public speaking in the training of teachers, is second with 15.4 percent.

Among Groups V, VI, and VII—the nonpublic colleges—similar patterns are found; social sciences, fine arts, and English are emphasized by the concentration of teachers in these fields.

Wide differences in emphasis upon certain other fields appear as we examine conditions in the various types of institutions. For example, foreign languages, with 5.2 percent of all teachers on the average and only 2.3 percent in Group IV, requires the services of 8.1 to 9.0 percent of the teachers in Groups V, VI, and VII. Biological sciences ranges from 7.1 percent in Group I to only 4.3 percent of the total teaching force in Group II. On the other hand, Group II leads in requiring 10.5 percent of its teachers in the physical sciences field, while Group IV devotes only 5.2 percent to this field.

Mathematics is constant in its requirement of about 1 of every 25 full-time teachers; the range is from 3.6 percent in Group I to 4.8 percent in Groups II and V. English varies from a low of 6.8 percent in Group I to a high of 10.8 percent in Group V. Physical and health education ranges from 3.6 percent in Group II to 9.2 percent in Group IV.

Preparation of Full-Time Staff

An NEA Research Division study of the preparation of college and university teachers in 1953-54 (covering 637 representative institutions of all types) shows that many of the full-time teachers in service had not yet earned the master's degree.[1] The evidence would seem to indicate that higher education institutions are entering the new era of expanded enrolments with an inadequately prepared staff.

For example: in 1953-54 only 40.5 percent of the total full-time staff held the doctor's degree; 28.2 percent held no more than the master's degree; 10.4 percent had not yet attained master's degree status. The remaining 20.9 percent were well along toward the doctor's degree.

Preparation of the total full-time teaching staff in one type of institution is not necessarily indicative of conditions to be found in another type of institution. For example, in nonpublic universities 51.9 percent of the full-time staff were found to hold the doctor's degree, but as many as 11.7 percent had not earned the master's degree. In teachers colleges, on the other hand, only 29.9 percent held the doctor's degree, but only 3.2 percent were below master's degree status. Again, in the nonpublic universities only 15.5 percent were substantially beyond the master's degree—on the way to the doctor's degree—while in teachers colleges no fewer than 30.8 percent were at this level.

When the single-unit institutions were considered, the nonpublic colleges had on the average 35.2 percent holders of the doctor's degree, while in the public institutions only 31.4 percent were at this level of preparation. At the other end of the preparation scale, 12.4 percent of the teachers in the nonpublic colleges were below master's degree status while only 5.4 percent of those in the public single-unit institutions were so classified. Table 10 shows further details.

The same study [2] shows wide variation of practice, among the different types of insti-

[1] National Education Association, Research Division. "Instructional Staff Practices and Policies in Degree-Granting Institutions, 1953-54." *Research Bulletin* 32: 165; December 1954.

[2] *Ibid.*, p. 176.

tutional support of its full-time teachers who, after six or seven years of service, wish to take leave for further graduate study. Almost one-half of all institutions (49.3 percent) reported they had no regular policy in operation by which they financially aid the teacher on leave for this purpose. This would seem to be further evidence that higher education institutions face the prospect of increased enrolments with teaching staffs not fully prepared to serve their present student bodies.

The Age Range of the Full-Time Staff

If all colleges and universities are to prepare to serve a greatly enlarged student body at a future date, they must not only enlarge their teaching staffs, they must continually make replacements. Total staff needs until, say, 1965 or 1970 will depend not only upon total enrolments at that time, but also upon the number of present teachers who will not be in service when that date arrives.

TABLE 10.—NUMBER AND PERCENT OF FULL-TIME INSTRUCTIONAL STAFF MEMBERS AT THE VARIOUS LEVELS OF PREPARATION, BY TYPE OF INSTITUTION, IN 637 DEGREE-GRANTING INSTITUTIONS, 1953-54

Type of institution	Number of instructional staff	Number and percent of staff at the various levels of preparation							
		Doctor's degree		Master's degree plus at least one year		Master's degree		Less than master's degree	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	2	3	4	5	6	7	8	9	10
I. Public universities and land-grant colleges	20,078	8,832	44.0%	3,477	17.3%	5,463	27.2%	2,306	11.5%
II. Nonpublic universities	10,925	5,675	51.9	1,689	15.5	2,287	20.9	1,274	11.7
III. State colleges	7,565	2,458	32.5	1,949	25.8	2,626	34.7	532	7.0
IV. Teachers colleges	5,481	1,640	29.9	1,685	30.8	1,979	36.1	177	3.2
Nonpublic colleges (by enrolment):									
V. 1,000 and over	4,745	1,805	38.0	935	19.7	1,355	28.6	650	13.7
VI. 500–999	5,486	1,968	35.9	1,358	24.7	1,561	28.5	599	10.9
VII. Under 500	4,439	1,390	31.3	1,173	26.4	1,311	29.6	565	12.7
All institutions	58,719	23,768	40.5%	12,266	20.9%	16,582	28.2%	6,103	10.4%

Source: National Education Association, Research Division, "Instructional Staff Practices and Policies in Degree-Granting Institutions, 1953-54." *Research Bulletin* 32: 165; December 1954. (Derived)

TABLE 11.—NUMBER OF REGULAR FULL-TIME TEACHERS, BY AGE, IN 661 DEGREE-GRANTING INSTITUTIONS, 1954-55

Age	Total number of teachers		Men		Women	
	Number	Percent	Number	Percent	Number	Percent
1	2	3	4	5	6	7
Under 25 years	542	0.9%	234	0.5%	308	2.3%
25–34 years	14,146	22.9	11,538	24.0	2,608	19.2
35–44 years	19,827	32.1	16,555	34.4	3,272	24.1
45–54 years	15,724	25.5	11,634	24.2	4,090	30.1
55–60 years	6,300	10.2	4,401	9.1	1,899	14.0
61 years	842	1.4	582	1.2	260	1.9
62 years	810	1.3	596	1.2	214	1.6
63 years	726	1.2	527	1.1	199	1.5
64 years	662	1.1	433	0.9	229	1.7
65 years	609	1.0	428	0.9	181	1.3
66 years	364	0.6	273	0.6	91	0.7
67 years	308	0.5	228	0.5	80	0.6
68 years	250	0.4	192	0.4	58	0.4
69 years	229	0.4	190	0.4	39	0.3
70 years	153	0.2	125	0.3	28	0.2
Over 70 years	175	0.3	155	0.3	20	0.1
All ages	61,667	100.0%	48,091	100.0%	13,576	100.0%
Q_1	35.4		35.2		36.5	
Median	43.1		42.4		46.5	
Q_3	52.5		51.7		54.8	

TABLE 12.—PERCENT OF REGULAR FULL-TIME TEACHERS AT EACH AGE LEVEL, BY SEX, AND BY TYPE OF INSTITUTION, 1954-55

Age	Public universities and land-grant colleges		Nonpublic universities		State colleges		Teachers colleges		Nonpublic colleges (by enrolment)					
									1,000 and over		500–999		Under 500	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Under 25 years	0.3%	2.2%	0.4%	2.4%	0.5%	1.6%	0.3%	1.1%	0.8%	3.1%	0.8%	2.9%	1.2%	3.7%
25–34 years	23.7	20.5	24.2	25.6	22.7	14.7	19.1	13.0	27.0	23.6	25.6	20.5	27.8	21.8
35–44 years	35.1	24.7	34.0	22.8	36.7	24.8	36.0	23.4	31.8	24.7	32.0	24.7	30.6	22.5
45–54 years	24.8	30.5	23.5	27.5	25.2	32.7	27.1	33.5	22.3	26.0	22.8	29.7	20.6	25.4
55–60 years	9.2	12.9	9.6	12.6	7.8	15.3	9.4	17.3	9.8	13.8	9.0	12.0	9.8	13.6
61 years	1.2	1.8	1.4	1.8	1.0	1.7	1.4	2.2	1.3	2.6	1.2	1.4	1.1	2.3
62 years	1.2	1.4	1.3	1.6	1.2	1.4	1.5	1.6	1.2	1.0	1.6	1.6	1.0	2.5
63 years	1.0	1.2	1.4	1.5	0.8	1.7	1.5	2.2	1.0	1.6	1.4	1.1	1.1	1.2
64 years	0.8	1.7	1.0	1.5	0.9	1.7	1.0	1.9	0.9	1.7	1.0	1.5	0.9	1.7
65 years	0.8	1.1	0.7	1.1	0.7	1.8	0.7	1.1	1.2	1.1	1.3	1.9	1.6	1.5
66 years	0.5	0.7	0.6	0.3	0.5	0.7	0.7	1.0	0.6	0.1	0.6	0.7	0.7	0.7
67 years	0.5	0.3	0.4	0.5	0.5	0.7	0.5	0.9	0.2	0.1	0.6	0.7	0.6	1.0
68 years	0.3	0.4	0.4	0.2	0.6	0.4	0.3	0.5	0.3	0.3	0.4	0.6	0.7	0.6
69 years	0.3	0.3	0.4	0.2	0.5	0.5	0.4	0.2	0.5	0.1	0.5	0.3	0.5	0.3
70 years	0.2	0.2	0.2	0.0	0.3	0.2	0.1	0.1	0.3	0.1	0.5	0.2	0.6	0.7
Over 70 years	0.1	0.1	0.5	0.4	0.1	0.1	0.0	0.0	0.8	0.1	0.7	0.2	1.2	0.5
All ages	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total number of teachers	20,950	4,360	7,906	1,225	5,920	2,491	3,253	1,890	3,344	834	3,704	1,227	3,014	1,549
Q_1	35.3	35.9	35.1	33.8	35.5	38.5	35.6	39.7	34.0	34.3	34.5	35.6	33.5	34.8
Median	42.4	45.8	42.4	44.6	42.3	47.7	43.5	48.7	42.0	44.4	42.4	45.6	41.8	45.8
Q_3	51.4	54.0	51.9	53.8	51.0	55.4	52.3	56.4	51.9	54.1	52.3	54.0	52.4	55.7

TABLE 13.—NUMBER AND PERCENT OF INSTITUTIONS, BY COMPULSORY AGE FOR RETIREMENT AND PERMISSION TO REMAIN IN SERVICE BEYOND COMPULSORY AGE IN DEGREE-GRANTING INSTITUTIONS, 1954-55

Item	All institutions		Type of institution													
			Public universities and land-grant colleges		Nonpublic universities		State colleges		Teachers colleges		Nonpublic colleges (by enrolment)					
											1,000 and over		500–999		Under 500	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Designated retirement age:																
60 years	1	0.2%	...	.....	...	.....	...	.....	1	1.1%	...	.....	...	.....	...	.....
62 years	1	0.2	...	.....	...	.....	...	.....	1	1.1	...	.....	...	.....	...	.....
65 years	265	40.0	23	28.1%	26	47.3%	39	38.2%	35	37.2	26	52.0%	53	48.2%	63	37.3%
66 years	3	0.4	...	.....	...	.....	...	.....	2	2.1	...	.....	...	.....	1	0.6
67 years	22	3.3	11	13.4	...	.....	4	3.9	3	3.2	...	.....	2	1.8	2	1.2
68 years	55	8.3	7	8.5	7	12.7	3	3.0	7	7.4	4	8.0	10	9.1	17	10.0
70 years	247	37.3	40	48.8	15	27.3	50	49.0	45	47.9	13	26.0	38	34.6	46	27.2
Over 70 years	5	0.8	...	.....	...	.....	1	1.0	...	.....	...	.....	2	1.8	2	1.2
No age limit	63	9.5	1	1.2	7	12.7	5	4.9	...	.....	7	14.0	5	4.5	38	22.5
All institutions reporting	662	100.0%	82	100.0%	55	100.0%	102	100.0%	94	100.0%	50	100.0%	110	100.0%	169	100.0%
Teaching service beyond retirement age:																
Permitted	378	63.6%	46	57.5%	40	85.1%	35	36.5%	38	40.9%	29	69.0%	85	82.5%	105	78.9%
Not permitted	216	36.4	34	42.5	7	14.9	61	63.5	55	59.1	13	31.0	18	17.5	28	21.1
All institutions reporting	594	100.0%	80	100.0%	47	100.0%	96	100.0%	93	100.0%	42	100.0%	103	100.0%	133	100.0%

TABLE 14.—NUMBER AND PERCENT OF INSTITUTIONS HAVING AND NOT HAVING SOCIAL SECURITY COVERAGE, 660 DEGREE-GRANTING INSTITUTIONS, 1954-55

Item	All institutions		Type of institution													
			Public universities and land-grant colleges		Nonpublic universities		State colleges		Teachers colleges		Nonpublic colleges (by enrolment)					
											1,000 and over		500–999		Under 500	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Extent of integration of retirement plan with OASI:																
Integrated	396	60.0%	24	29.6%	49	89.1%	14	13.7%	22	23.6%	45	90.0%	98	89.9%	144	84.7%
Not integrated, but contemplated	65	9.9	26	32.1	1	1.8	22	21.6	13	14.0	1	2.0	2	1.8	...	.....
Not integrated	179	27.1	29	35.8	3	5.5	65	63.7	58	62.4	4	8.0	7	6.5	13	7.7
Have only OASI	12	1.8	2	2.5	...	.....	...	.....	...	.....	...	.....	2	1.8	8	4.7
Have no retirement plan	8	1.2	...	.....	2	3.6	1	1.0	...	.....	...	.....	...	.....	5	2.9
All institutions reporting	660	100.0%	81	100.0%	55	100.0%	102	100.0%	93	100.0%	50	100.0%	107	100.0%	170	100.0%

TABLE 15.—RATIO OF FULL-TIME COLLEGE STUDENTS TO REGULAR FULL-TIME TEACHERS, BY TYPE OF INSTITUTION, IN 673 DEGREE-GRANTING INSTITUTIONS, 1954-55

Type of institution[a]	Number of full-time college students	Number of full-time teachers	Ratio
1	2	3	4
Group I	388,625	26,716	14.5 to 1
Group II	151,719	9,241	16.4 to 1
Group III	135,441	8,520	15.9 to 1
Group IV	78,938	5,211	15.1 to 1
Group V	65,669	4,266	15.4 to 1
Group VI	73,782	5,138	14.4 to 1
Group VII	52,500	4,659	11.3 to 1
All institutions	946,674	63,759	14.8 to 1

[a] For description of institutions according to Group, see Table 1, page 131.

Note: The meaning of these ratios is limited because (a) temporary full-time teachers are not included, and (b) neither part-time students nor part-time teachers are included.

The effect of deaths and withdrawals is not known, but the age distribution of the total staff in 1954-55 shows concisely the rate at which teachers now in service are advancing toward retirement age. Table 11 presents the pertinent facts concerning the 61,667 full-time teachers in service in 661 reporting institutions.

Teachers beyond 60 years of age account for 8.4 percent of the total—7.8 percent of the men and 10.3 percent of the women. Those within the 55-60 range include another 10.2 percent of the total—9.1 percent of the men and 14.0 percent of the women. And those within the 45-54 range include still another 25.5 percent. This means that, of the present staff, well over one-third will have attained retirement age before the four million children born in 1954 reach college-entrance age.

Table 11 shows that the median age of all teachers in full-time service in 1954-55 was 43.1 years—men, 42.4, and women, 46.5 years. One-fourth of all were over 52.5 years of age and one-fourth were under 43.1 years. Table 12 shows the percent of regular full-time teachers at each age level, by sex and by type of institution.

Service Beyond the Retirement Age

At what age is retirement from full-time teaching service required, and how many institutions maintain the practice of permitting exceptions?

Light is thrown upon this two-fold question in Table 13. Among the 662 reporting institutions, 40 percent maintain a 65-year retirement age; 37.3 percent stipulate 70 years as the limit; 9.5 percent have no regulation in force, and the others scatter their practices from 60 years to more than 70 years of age. More than half of the institutions not maintaining a regulation are in Group VII.

But almost two-thirds (63.6 percent) of all those maintaining a regulation permit exceptions to it. As many as 85.1 percent of those in Group II do so; at the other extreme only 36.5 percent of those in Group III make a practice of violating the regulation. In every case the exception is made on an individual basis, with discretion being in the hands of the administration. This widespread practice of permitting individuals, under certain circumstances, to remain in service beyond the stipulated retirement age would seem to be a factor in the over-all supply-demand problem.

The Impact of OASI

Recently enacted legislation extending the possible coverage of social security bespeaks the participation of more colleges and universities in this type of retirement provision. At present 61.8 percent of the 660 reporting institutions participate. Another 9.9 percent contemplate doing so. Of this total (71.7 percent) only a small number will find a conflict between their existing retirement age and the 65-year age provided in OASI. Details are given in Table 14.

TABLE 16.—NUMBER OF PART-TIME TEACHERS IN SERVICE, BY TYPE OF INSTITUTION, IN 580 DEGREE-GRANTING INSTITUTIONS IN MARCH 1955

Type of institution[a]	Number of institutions reporting	Number of part-time teachers	Average number per institution
1	2	3	4
Group I	59	4,505	76.4
Group II	49	7,670	156.5
Group III	91	934	10.3
Group IV	80	368	4.6
Group V	48	836	17.4
Group VI	99	1,128	11.4
Group VII	154	820	5.3
All institutions	580	16,261	28.0

[a] For description of institutions according to Group, see Table 1, page 131.

TABLE 17.—NUMBER OF TEMPORARY FULL-TIME TEACHERS, BY TYPE OF INSTITUTION, IN SERVICE IN 671 DEGREE-GRANTING INSTITUTIONS, 1954-55

Type of institution[a]	Number of institutions reporting	Number of temporary full-time teachers	Average number per institution
1	2	3	4
Group I	80	1,495	18.7
Group II	56	195	3.5
Group III	103	236	2.3
Group IV	94	160	1.7
Group V	50	210	4.2
Group VI	112	183	1.6
Group VII	176	140	0.8
All institutions	671	2,619	3.9

[a] For description of institutions according to Group, see Table 1, page 131.

Student-Teacher Ratio

Numerous authorities, in trying to compute the number of college and university teachers to be needed at a designated future date, seek to determine the probable number of students to be taught, and then divide that total by a figure which would represent the student-teacher ratio at that time. Such procedure assumes the preservation of the present ratio. But, like the pupil-teacher ratio in elementary and secondary schools, the prevailing assumptions are being subjected to re-examination. A desirable—and feasible—ratio in an institution emphasizing one kind of curriculum may not be practicable in another situation. Differences may further be justified from subject to subject within an institution.

A study of prevailing student-teacher ratios was not a specific part of this investigation. A broad, general picture is shown, however, in Table 15. In interpreting these figures, it must be kept in mind that they are based on total full-time students and total full-time teachers only. The presence or absence of large numbers of either part-time students or part-time teachers would naturally modify the meaning of the relationships shown in the table, as would also the presence or absence of temporary full-time teachers.

Part-Time and Temporary Teachers

The number of part-time students enrolled in the participating institutions could not be obtained. The number of part-time teachers in service is shown in Table 16 and the number of temporary full-time teachers in service is shown in Table 17.

In Group I the number of part-time teachers in service averages 76.4 per institution; in Group II the average is 156.5 per institution. These two groups are the multiple-unit institutions, however, and the availability of many graduate students to participate in the undergraduate instructional program is recognized. It must also be noted that the reported part-time teachers were in service in March 1955; it does not follow that all of them were in service during both semesters or all three quarters of the academic year.

Temporary full-time teachers are not sufficiently numerous in any type of institution to be considered a significant factor. Their distribution among the general fields of teaching, and the percent of men within each group, are shown in Table 18.

Conclusion

It is generally recognized that college and university enrolments will expand greatly during the next 15 years, and thus teaching staffs must be enlarged. To plan most effectively, ad-

TABLE 18.—DISTRIBUTION OF TEMPORARY FULL-TIME TEACHERS, BY GENERAL FIELDS OF TEACHING AND PERCENT OF MEN IN EACH FIELD IN 671 INSTITUTIONS, 1954-55

General field of teaching	Number of teachers	Percent distribution by fields	Percent of men in each field
1	2	3	4
Agriculture	40	1.5%	95.0%
Biological sciences	128	4.9	74.2
Business and commerce	138	5.3	74.6
Education	221	8.5	54.8
Engineering	130	5.0	97.7
English	302	11.5	59.6
Fine arts	291	11.1	67.4
Foreign languages	117	4.5	69.2
Geography	14	0.5	92.9
Health sciences	86	3.3	44.2
Home economics	77	3.0	1.3
Industrial and vocational arts	27	1.0	85.2
Journalism	14	0.5	92.9
Law	18	0.7	100.0
Library science	49	1.9	16.3
Mathematics	145	5.5	74.5
Philosophy	40	1.5	100.0
Physical and health education	110	4.2	48.2
Physical sciences	194	7.4	86.1
Psychology	55	2.1	85.5
Religion	24	0.9	95.8
Social sciences	333	12.7	89.5
Others	66	2.5	69.7
Total	2,619	100.0%	70.1%

ministrative officials need numerous facts not now generally available concerning the teaching staffs currently in service. Among these needed facts are (a) the sex distribution, the preparation, the distribution by teaching field, and the range of ages of all full-time teachers; (b) the existing regulations governing retirement; (c) the administration of these regulations and influences likely to affect them; (d) the present student-teacher ratios; and (e) the number of part-time and the number of temporary full-time teachers in service. It has been the purpose of this section to present up-to-date information in these areas. The foregoing data, having been reported by a majority of the institutions in each of the seven groups, should be generally representative of the situation at large.

Determination of staff needs is one of those problems which keeps the so-called ivory tower of higher education from being an ivory tower. True, a certain amount of dreaming about numbers on the staff does occur: the idea of a student on one end of a log, a teacher on the other, has a certain glamor which has beguiled nearly every teacher and administrator in the land. Finally, however, the dream fades in the light of hard budgetary facts; the administrator and his staff turn to wrestling with the questions: How many teachers are needed at this college? How may that need be justified, both to ourselves and to those who set the budget?—Enochs, James B. "What Factors Should Be Considered by an Institution in Determining Its Staff Needs?" *Current Issues in Higher Education, 1955.* Washington, D. C.: Association for Higher Education, a department of the National Education Association, 1955. p. 201.

III. The Demand for Teachers

In the free operation of the laws of supply and demand, various meanings are applied to each of these terms. When one speaks of the *supply* of properly prepared people to perform a certain function, for example, he must take into account many factors not present when considering an article of merchandise. In like manner, the term *demand* has concise meaning only when the conditioning factors are understood and weighed.

Broadly speaking, the task of assessing the demand for college teachers may be approached in either of two distinctly different ways. One way is based upon the effort to foresee such future conditions as these: the number of new students who will probably seek admission, the length of time they will probably remain in college, the manner in which they will distribute themselves among the fields and subjects of instruction, and the extent and variety of special services likely to be required. Also to be predicted are the student-teacher ratio to be maintained, the possible reorganization of instructional procedures, the extent to which subjectmatter may be further proliferated, and necessary adjustment to the probable limitation of plant facilities. In essence, the prediction of future *demand* for teachers would be based upon the effort to see into the future and to weigh in advance the impact of conditions likely to occur.

Another approach may be quite different; it may depend chiefly upon an effort to measure, more concisely than has been done, the particular factors contributing to existing conditions. With these factors thus more clearly in view, the influences and conditions which brought them about may be assessed. Such steps would lay the groundwork for a study of trends.

This latter approach is widely used in business. The manufacturer, for example, considers as basic an accurate record of the number of units purchased by the public (demanded) last month, last year, and at other set times in the past. He determines his production schedule first upon past sales and then upon his evaluation of future conditions.

The study of the demand for college and university teachers, as reported in this bulletin, employed this latter approach. Future demand, it is assumed, can be most meaningfully approached thru an analysis of existing conditions. And one vital condition to be determined is this: What is the *present* demand?

Concept of Demand for Teachers

As used in this study, the demand for teachers requires an understanding of three elements: first, the meaning of the term *new* teachers; second, a method of identifying and describing some of the characteristics of the *new* teachers within a known period of time; third, the recognizable limitations of the two preceding steps.

As a prefatory step the *regular full-time teacher* must be defined. This includes only those who are assumed to be continuing members of the instructional staff—on tenure, or in line to attain tenure status according to the regulations of the institution. This category excludes part-time teachers, temporary full-time teachers, and all others who, by mutual understanding, will automatically be discontinued at a designated future date.

A *new* teacher is one who becomes a *regular full-time teacher,* not having been so engaged *the preceding academic year.* In other words, the *new* teacher comes from outside and becomes a member of the total corps of regular full-time teachers.

Records are not available to show the number of new teachers employed by the colleges and universities of America during an academic year. In other words, there is no existing record of the *demand,* as the annual demand has been met in past years by the introduction of persons from outside the regular full-time corps.

This study has undertaken to measure the *demand,* on the basis of this concept, during the 1953-54 and 1954-55 years. It is assumed that this two-year report will comprise a bench mark not unlike the manufacturer's record of his sales for the past two years—it is the springboard from which future demand may be predicted as the impact of observable changing conditions is assessed.

Limitation of the Demand Concept

The foregoing definition of the demand for teachers has this sharp limitation: It does not take into account positions which are allowed to remain vacant because qualified candidates cannot be found. If an institution has budgeted

the funds but allows the position to remain vacant, such demand does not come to light thru the identification of new teachers as reported in the following section.

The Demand in 1953-54 and in 1954-55

Table 19 presents the basic findings of this study—the number and sex of the new teachers employed by 656 degree-granting institutions during the two years just past, and the distribution of these new teachers among the various general fields of teaching. These figures for both these years were sought so that a two-year base would be available for the comparison of new teachers with the total staff. In this way an unusual situation of a temporary nature would tend to reveal itself.

Table 20 compares the total number of full-time teachers in 1954-55 with the number of new teachers employed the same year, by sex and by general field of teaching. Within the total staff, as shown in Table 20, the general field of the social sciences claims the largest number of full-time teachers. It is followed, in order, by fine arts, English, physical sciences, education, engineering, biological sciences, physical and health education, foreign languages, business and commerce, agriculture, and mathematics.[1] But Table 20 shows a different arrangement of these fields in terms of the number of new teachers employed. Fine arts tops this list. Physical sciences, fourth in total staff, is third in number of new teachers employed; English, third in total staff, is fifth in the demand for new teachers; foreign languages, ninth in total staff, is twelfth in the demand for new teachers during 1954-55.

This comparison—the distribution of total teachers with the distribution of new teachers among the teaching fields—points up the need for a record of new teachers employed during several consecutive years. Once such a record is built up, it will then be possible to identify the causes of deviations from an established trend. Until these data accumulate, however, it will not be possible to assess the meaning of a sudden change in the relationship between the total staff in a particular teaching field and the number of new teachers employed in that field in any one year. Such a change may be

[1] The field of health sciences, altho shown in the tables, is not included in this list because its place, in terms of numbers of teachers required, is unknown; many of the reporting institutions did not include such fields as dentistry, medicine, and other professional schools in which a disproportionate number of part-time teachers may be used.

TABLE 19.—NUMBER OF NEW TEACHERS EMPLOYED, BY SEX AND BY GENERAL FIELD OF TEACHING, IN 1953-54 AND IN 1954-55, IN 656 DEGREE-GRANTING INSTITUTIONS

General field of teaching	Employed in 1953-54			Employed in 1954-55		
	Total	Men	Women	Total	Men	Women
1	2	3	4	5	6	7
Agriculture	175	159	16	199	182	17
Biological sciences	233	201	32	233	191	42
Business and commerce	201	161	40	261	195	66
Education	342	223	119	351	232	119
Engineering	321	319	2	389	384	5
English	373	275	98	380	283	97
Fine arts	443	331	112	541	402	139
Foreign languages	146	106	40	188	145	43
Geography	22	20	2	19	17	2
Health sciences	238	129	109	280	142	138
Home economics	143	13	130	135	3	132
Industrial and vocational arts	64	59	5	49	45	4
Journalism	22	19	3	23	17	6
Law	22	21	1	24	22	2
Library science	82	24	58	94	23	71
Mathematics	193	163	30	208	181	27
Philosophy	60	58	2	60	59	1
Physical and health education	252	127	125	246	125	121
Physical sciences	342	313	29	407	371	36
Psychology	117	103	14	144	128	16
Religion	71	65	6	75	68	7
Social sciences	441	393	48	456	396	60
Others	3	2	1	6	6	...
Total number of teachers	4,306	3,284	1,022	4,768	3,617	1,151
Percent, by sex	100.0%	76.3%	23.7%	100.0%	75.9%	24.1%

TABLE 20.—COMPARISON OF NUMBER OF REGULAR FULL-TIME TEACHERS IN 1954-55 WITH NUMBER OF NEW TEACHERS EMPLOYED DURING 1954-55, BY SEX AND BY GENERAL FIELDS OF TEACHING, IN 656 DEGREE-GRANTING INSTITUTIONS

General field of teaching	Total staff, 1954-55			New teachers employed in 1954-55					
				Number			Percent new teachers are of total in field, 1954-55		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
1	2	3	4	5	6	7	8	9	10
Agriculture	2,692	2,598	94	199	182	17	7.4%	7.0%	18.1%
Biological sciences	3,638	3,091	547	233	191	42	6.4	6.2	7.7
Business and commerce	3,137	2,494	643	261	195	66	8.3	7.8	10.3
Education	4,555	2,881	1,674	351	232	119	7.7	8.1	7.1
Engineering	4,216	4,195	21	389	384	5	9.2	9.2	23.8
English	5,097	3,626	1,471	380	283	97	7.5	7.8	6.6
Fine arts	6,562	4,842	1,720	541	402	139	8.2	8.3	8.1
Foreign languages	3,175	2,278	897	188	145	43	5.9	6.4	4.8
Geography	479	404	75	19	17	2	4.0	4.2	2.7
Health sciences	2,203	1,456	747	280	142	138	12.7	9.8	18.5
Home economics	1,508	55	1,453	135	3	132	9.0	5.5	9.1
Industrial and vocational arts	917	854	63	49	45	4	5.3	5.3	6.3
Journalism	375	345	30	23	17	6	6.1	4.9	20.0
Law	502	493	9	24	22	2	4.8	4.5	22.2
Library science	1,360	382	978	94	23	71	6.9	6.0	7.3
Mathematics	2,478	2,126	352	208	181	27	8.4	8.5	7.7
Philosophy	863	819	44	60	59	1	7.0	7.2	2.3
Physical and health education	3,294	2,026	1,268	246	125	121	7.5	6.2	9.5
Physical sciences	4,980	4,672	308	407	371	36	8.2	7.9	11.7
Psychology	1,527	1,320	207	144	128	16	9.4	9.7	7.7
Religion	889	823	66	75	68	7	8.4	8.3	10.6
Social sciences	6,698	5,975	723	456	396	60	6.8	6.6	8.3
Others	154	93	61	6	6	.....	3.9	6.5	...
All fields of teaching	61,299	47,848	13,451	4,768	3,617	1,151	7.8%	7.6%	8.6%

TABLE 21.—PERCENT OF MEN TEACHERS BY GENERAL FIELDS OF TEACHING: NEW TEACHERS AND TOTAL STAFF COMPARED IN 656 DEGREE-GRANTING INSTITUTIONS, 1953-54 AND 1954-55

General field of teaching	Percent of men teachers			
	Total staff 1954-55	New teachers		
		1953-54	1954-55	Both years
1	2	3	4	5
Agriculture	96.5%	90.9%	91.5%	91.2%
Biological sciences	85.0	86.3	82.0	84.1
Business and commerce	79.5	80.1	74.7	77.1
Education	63.2	65.2	66.1	65.7
Engineering	99.5	99.4	98.7	99.0
English	71.1	73.7	74.5	74.1
Fine arts	73.8	74.7	74.3	74.5
Foreign languages	71.7	72.6	77.1	75.1
Geography	84.3	90.9	89.5	90.2
Health sciences	66.1	54.2	50.7	52.3
Home economics	3.6	9.1	2.2	5.8
Industrial and vocational arts	93.1	92.2	91.8	92.0
Journalism	92.0	86.4	73.9	80.0
Law	98.2	95.5	91.7	93.5
Library science	28.1	29.3	24.5	26.7
Mathematics	85.8	84.5	87.0	85.8
Philosophy	94.9	96.7	98.3	97.5
Physical and health education	61.5	50.4	50.8	50.6
Physical sciences	93.8	91.5	91.2	91.3
Psychology	86.4	88.0	88.9	88.5
Religion	92.6	91.5	90.7	91.1
Social sciences	89.2	89.1	86.8	88.0
Others	60.4	66.7	100.0	88.9
Total	78.1%	76.3%	75.9%	76.1%

of only one year's duration, or it may be the beginning of a long-range trend.

The Sex of New Teachers, by Field

Among the new teachers employed in 1953-54 and in 1954-55 men predominate in varying degrees in every general teaching field except home economics and library science, as indicated in Table 21. Excluding such men's fields as agriculture, engineering, and the vocational arts, this table shows that some 9 of every 10 full-time teachers are men in the fields of journalism, law, philosophy, physical sciences, religion, and social sciences. About four of every five are men in biological sciences, business and commerce, geography, mathematics, and psychology.

On the average, 78.1 percent of all full-time teachers are men. But the employment of new teachers in 1953-54, with 76.3 percent being men, and in 1954-55, with 75.9 percent being men, shows a slight tendency toward the acceptance of more women.

In the fields of most widely advertised shortage—physical sciences and mathematics—the sex division of new teachers closely parallels that of the total group. Table 21 contains further details.

Preparation of New Teachers

A question of vital importance is, How well prepared are the new teachers being added to the full-time staffs of the colleges and universities? The facts shown in Table 19 would seem to indicate the answer, Not very well. Analysis of the academic training of the new full-time teachers employed in 1953-54 and in 1954-55 shows that their addition does not up-grade the total corps.

A comparison of Table 22 and Table 10 (page 138) shows these facts: Of the total full-time staff in service in 1953-54, 40.5 percent held the doctor's degree, 20.9 percent had completed the equivalent of at least one full year of preparation beyond the master's degree, 28.2 percent were at the master's degree level, and 10.4 percent were below that level; of the new full-time teachers employed during the past two years, only 30.8 percent hold the doctor's degree, 18.2 percent are one year beyond the master's degree, 32.5 percent are at the master's degree level, and 18.5 percent are below that level.

The comparison of the preparation of all full-time teachers in 1953-54 with that of the new teachers employed in 1953-54 and in 1954-55 is limited because the field-by-field breakdown of the total staff is not available. Table 22 shows this field-by-field distribution of new teachers employed during the two years according to their preparation.

Among the new teachers, more than one-half in psychology (65.1 percent) and in biological sciences (57.3 percent) hold the doctor's degree. In physical sciences it is 49.7 percent; in philosophy, 44.2 percent; in social sciences, 43.7 percent with the doctor's degree.[2] Between 3 and 4 of every 10 new teachers in these fields hold the doctor's degree: agriculture, education, foreign languages, geography, law, mathematics, and religion. Only about 1 in 4 new English teachers holds this degree, and fewer than 1 in 5 do so in business and commerce, engineering, home economics, and journalism. Only 1 in 10 new teachers in fine arts has attained this level of preparation.

At the other end of the preparation scale, new teachers without the master's degree vary from only 2.3 percent in psychology to more than one-third in agriculture, engineering, industrial and vocational arts, law, and physical and health education. In the fields of the greatest general shortage among the different types of institutions, physical sciences and mathematics, new teachers below the master's degree level equal 12.3 and 10.7 percent, respectively, of the new teachers employed in these fields.

A comparison of the preparation of men with that of women brings to light another item of information about the new teachers. At the doctor's degree level are 36.3 percent of the men but only 13.2 percent of the women. At the other extreme are 16.0 percent of the men and 26.4 percent of the women without the master's degree. Other detailed comparisons may be made from the data in Table 22.

Sources of New Teachers

Another question to be asked about new teachers is, Where do they come from? At this point it should be noted again that *teacher turnover* was not a part of the study reported in this bulletin. Many teachers, of course, shift from one teaching position to another. In doing so, they neither create nor satisfy a *demand* for a teacher; they only transfer the

[2] See footnote 1, page 145.

TABLE 22.—NUMBER OF NEW TEACHERS BY AMOUNT OF ACADEMIC TRAINING, BY GENERAL FIELDS OF TEACHING, AND BY SEX IN 656 DEGREE-GRANTING INSTITUTIONS, 1953-54 AND 1954-55

General field of teaching	Total new teachers 1953-54 and 1954-55			Percent of new teachers having:											
				Doctor's degree			Master's degree plus one year			Master's degree			Less than master's degree		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Agriculture	374	341	33	34.2%	37.0%	6.1%	9.1%	10.0%	....	23.0%	24.0%	12.1%	33.7%	29.0%	81.8%
Biological sciences	466	392	74	57.3	61.2	36.5	15.7	16.1	13.5%	19.9	17.1	35.1	7.1	5.6	14.9
Business and commerce	462	356	106	19.0	23.3	4.7	19.5	22.2	10.4	42.2	36.2	62.3	19.3	18.3	22.6
Education	693	455	238	36.7	47.3	16.4	24.5	25.9	21.9	30.3	22.0	46.2	8.5	4.8	15.5
Engineering	710	703	7	15.1	15.2	....	8.6	8.4	28.6	32.1	32.0	42.8	44.2	44.4	28.6
English	753	558	195	26.2	29.2	17.4	30.1	34.4	18.0	35.6	30.1	51.3	8.1	6.3	13.3
Fine arts	984	733	251	10.6	13.2	3.2	17.6	18.6	14.7	48.6	46.8	53.8	23.2	21.4	28.3
Foreign languages	334	251	83	34.1	35.8	28.9	29.0	30.7	24.1	28.2	25.9	34.9	8.7	7.6	12.1
Geography	41	37	4	31.7	32.4	25.0	29.3	32.4	....	36.6	35.2	50.0	2.4	....	25.0
Health sciences	518	271	247	44.8	77.8	8.5	6.6	6.3	6.9	22.4	4.8	41.7	26.2	11.1	42.9
Home economics	278	16	262	16.2	68.8	13.0	7.6	6.2	7.6	53.2	18.8	55.3	23.0	6.2	24.1
Industrial and vocational arts	113	104	9	10.6	11.5	....	9.7	9.6	11.2	38.1	37.5	44.4	41.6	41.4	44.4
Journalism	45	35	9	17.8	15.7	22.2	8.9	11.1	....	57.8	58.3	55.6	15.5	13.9	22.2
Law	46	43	3	30.4	32.6	....	10.9	11.6	....	13.0	11.6	33.3	45.7	44.2	66.7
Library science	176	47	129	1.7	4.2	0.8	12.5	27.7	7.0	55.1	44.7	58.9	30.7	23.4	33.3
Mathematics	401	344	57	31.7	35.5	8.8	21.2	22.1	15.8	36.4	33.1	56.1	10.7	9.3	19.3
Philosophy	120	117	3	44.2	44.4	33.3	30.0	29.9	33.3	18.3	18.0	33.3	7.5	7.7	....
Physical and health education	498	252	246	8.2	10.3	6.1	7.4	9.5	5.3	47.0	47.2	46.7	37.4	33.0	41.9
Physical sciences	749	684	65	49.7	51.4	30.8	14.9	15.5	9.2	23.1	22.4	30.8	12.3	10.7	29.2
Psychology	261	231	30	65.1	66.2	56.7	21.1	20.8	23.3	11.5	10.4	20.0	2.3	2.6	....
Religion	146	133	13	34.3	33.1	46.1	31.5	32.3	23.1	21.2	21.8	15.4	13.0	12.8	15.4
Social sciences	897	789	108	43.7	46.4	24.1	27.9	28.9	20.4	23.1	19.6	48.1	5.3	5.1	7.4
Others	9	8	1	11.1	12.5	....	11.1	12.5	....	....	....	....	77.8	75.0	100.0
All fields of teaching	9,074	6,901	2,173	30.8%	36.3%	13.2%	18.2%	20.0%	12.7%	32.5%	27.7%	47.7%	18.5%	16.0%	26.4%

demand from one location to another. Thus *another full-time college teaching position* is not a possible source from which a new teacher could come. Of the 656 institutions reporting on the employment of new teachers in 1953-54 and in 1954-55, 635 institutions found it possible to identify and report the sources from which these new teachers came, as indicated in Table 23.

Just over one-half (51.5 percent) of these new teachers came directly from graduate school. This percent varies only from 56.2 for Group VI to 44.5 for Group IV.[3]

The next source of supply—some educational service other than regular full-time college teaching—contributed, on the average, 22.2 percent of the new teachers. But the range among the types of institutions drawing upon this source is wide: from 17.1 percent for Group II to 42.2 percent for Group IV. This latter group (teachers colleges) probably recruits most heavily from elementary and secondary schools. In an NEA Research Division study reported a year ago [4] it was found that many teachers college authorities look with favor upon firsthand experience with pupils of elementary- and secondary-school age as a qualification for a full-time college teaching position related to the preparation of elementary- or secondary-school teachers. The fact that 4 in 10 of the new teachers in this type of institution come directly from some other kind of educational service would seem to support this earlier finding.

One in 10 of the new teachers, on the average, comes directly from a business occupation. Group II draws upon this source for 15.0 percent of its new teachers, while Group IV takes only 2.0 percent of its new teachers from business occupations.

Government service furnishes 5.0 percent of the new teachers required by Group I, but only 1.3 percent of those employed by Group VII. Returnees from the military services comprise only 2.0 percent of the new teachers.

Nature of the Unfilled Demand

Earlier in this section it was recognized that one aspect of the demand for teachers would not be revealed by the identification of new teachers: positions unfilled thru lack of acceptable candidates altho funds are provided for these positions. Among the 645 reporting institutions, 399 indicated that no teaching positions had remained vacant because acceptable candidates were not available. But 246 institutions did report one or more unfilled places in either 1953-54 or 1954-55. Table 24 shows the distribution of these institutional reports among the general fields of teaching. No fewer than 92 institutions failed to fill vacancies in physical sciences. Next came 58 in engineering, 38 in mathematics, 37 in education, and 34 in business and commerce.

While 61.9 percent of all institutions reported no unfilled positions thru lack of

[3] For a description of institutions according to Group, see Table 1, page 131.

[4] National Education Association, Research Division. "Instructional Staff Practices and Policies in Degree-Granting Institutions, 1953-54." *Research Bulletin* 32: 168; December 1954.

TABLE 23.—SOURCES OF NEW FULL-TIME TEACHERS APPOINTED IN 1953-54 AND IN 1954-55 IN 635 DEGREE-GRANTING INSTITUTIONS

Sources of new teachers	All institutions	Type of institution						
		Public universities and land-grant colleges	Nonpublic universities	State colleges	Teachers colleges	Nonpublic colleges (by enrolment)		
						1,000 and over	500-999	Under 500
1	2	3	4	5	6	7	8	9
Graduate school	51.5%	53.3%	52.0%	44.9%	44.5%	50.9%	56.2%	54.3%
Some educational service other than regular full-time college teaching	22.2	18.7	17.1	29.0	42.2	18.6	21.0	21.6
Business occupations	10.4	11.7	15.0	11.3	2.0	13.0	6.0	7.2
Government service	3.5	5.0	3.8	4.0	3.6	2.0	1.8	1.3
Military service	2.0	2.5	1.5	1.7	2.4	1.8	2.0	1.2
Other	10.4	8.8	10.6	9.1	5.3	13.7	13.0	14.4
All sources	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Number of institutions reporting	635	72	52	98	89	50	106	168

TABLE 24.—NUMBER AND PERCENT OF INSTITUTIONS REPORTING TEACHING POSITIONS UNFILLED IN 1953-54 OR 1954-55 BECAUSE OF LACK OF ACCEPTABLE CANDIDATES IN EACH GENERAL FIELD OF TEACHING, BY TYPE OF INSTITUTION

General field of teaching	All institutions		Public universities and land-grant colleges		Nonpublic universities		State colleges		Teachers colleges		Nonpublic colleges (by enrolment)					
											1,000 and over		500–999		Under 500	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Agriculture	6	0.9%	2	2.8%	...	...	3	3.0%	1	1.1%	...	...	...	...	...	...
Biological sciences	9	1.4	1	1.4	1	2.0%	2	2.0	2	2.2	1	2.0%	...	...	2	1.2%
Business and commerce	34	5.3	11	15.3	4	7.8	6	5.9	...	...	6	12.0	5	4.5%	2	1.2
Education	37	5.7	5	6.9	5	9.8	6	5.9	11	12.0	2	4.0	1	0.9	7	4.2
Engineering	58	9.0	25	34.7	11	21.6	13	12.9	1	1.1	5	10.0	2	1.8	1	0.6
English	10	1.6	1	1.4	1	2.0	4	4.0	1	1.1	...	...	1	0.9	2	1.2
Fine arts	9	1.4	1	1.4	1	2.0	1	1.0	...	...	2	4.0	3	2.7	1	0.6
Foreign languages	4	0.6	...	...	...	...	2	2.0	1	1.1	...	...	...	...	1	0.6
Geography	1	0.2	1	1.4	...	...	...	...	...	...	...	...	...	...	...	...
Health sciences	12	1.9	7	9.7	1	2.0	2	2.0	...	...	1	2.0	1	0.9	...	...
Home economics	14	2.2	5	6.9	...	...	4	4.0	2	2.2	1	2.0	...	...	2	1.2
Industrial and vocational arts	9	1.4	2	2.8	3	5.9	2	2.0	1	1.1	1	2.0	...	...	...	...
Journalism	4	0.6	1	1.4	...	...	1	1.0	...	...	...	...	2	1.8	...	...
Law	3	0.5	2	2.8	...	...	1	1.0	...	...	...	...	...	...	...	...
Library science	4	0.6	...	...	1	2.0	3	3.0	...	...	...	...	...	...	...	...
Mathematics	38	5.9	14	19.4	7	13.7	9	8.9	1	1.1	2	4.0	4	3.6	1	0.6
Philosophy	6	0.9	2	2.8	...	...	...	...	1	1.1	...	...	2	1.8	1	0.6
Physical and health education	14	2.2	1	1.4	1	2.0	2	2.0	2	2.2	...	...	3	2.7	5	3.0
Physical sciences	92	14.3	23	31.9	14	27.5	12	11.9	10	10.9	5	10.0	16	14.4	12	7.1
Psychology	13	2.0	4	5.6	...	...	2	2.0	2	2.2	2	4.0	3	2.7	...	...
Religion	2	0.3	...	...	...	...	...	...	...	...	...	...	1	0.9	1	0.6
Social sciences	14	2.2	5	6.9	2	3.9	3	3.0	2	2.2	...	...	2	1.8	...	...
No unfilled positions	399	61.9	22	30.6	25	49.0	47	46.5	65	70.7	31	62.0	75	67.6	134	79.8
Number of institutions reporting	645	...	72	...	51	...	101	...	92	...	50	...	111	...	168	...

TABLE 25.—NUMBER AND PERCENT OF INSTITUTIONS REPORTING SHORTAGE OF QUALIFIED TEACHERS OBSERVED DURING 1953-54 OR 1954-55 IN EACH GENERAL FIELD OF TEACHING, BY TYPE OF INSTITUTION

General field of teaching	All institutions		Number and percent of institutions reporting teaching field													
			Public universities and land-grant colleges		Nonpublic universities		State colleges		Teachers colleges		Nonpublic colleges (by enrolment)					
											1,000 and over		500–999		Under 500	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Agriculture	14	2.2%	5	6.8%	...	...	7	6.9%	1	1.1%	...	...	...	...	1	0.6%
Biological sciences	35	5.4	7	9.5	2	3.8%	5	5.0	5	5.6	3	6.0%	7	6.4%	6	3.6
Business and commerce	102	15.8	17	23.0	10	19.2	20	19.8	5	5.6	11	22.0	18	16.5	21	12.5
Education	109	16.9	11	14.9	5	9.6	18	17.8	41	45.6	1	2.0	9	8.3	24	14.3
Engineering	97	15.1	42	56.8	19	36.5	20	19.8	1	1.1	7	14.0	6	5.5	2	1.2
English	33	5.1	3	4.1	...	...	6	5.9	6	6.7	1	2.0	6	5.5	11	6.5
Fine arts	39	6.1	3	4.1	3	5.8	7	6.9	5	5.6	3	6.0	9	8.3	9	5.4
Foreign languages	21	3.3	...	...	4	7.7	1	1.0	1	1.1	1	2.0	5	4.6	9	5.4
Health sciences	30	4.7	15	20.3	4	7.7	3	3.0	1	1.1	3	6.0	3	2.8	1	0.6
Home economics	86	13.4	14	18.9	3	5.8	23	22.8	11	12.2	3	6.0	12	11.0	20	11.9
Industrial and vocational arts	20	3.1	7	9.5	1	1.9	5	5.0	5	5.6	1	2.0	...	...	1	0.6
Journalism	3	0.5	2	2.7	...	...	...	...	...	...	...	...	1	0.9	...	...
Law	2	0.3	2	2.7	...	...	...	...	...	...	...	...	...	...	...	...
Library science	16	2.5	1	1.4	...	...	4	4.0	7	7.8	...	...	2	1.8	2	1.2
Mathematics	187	29.0	34	45.9	19	36.5	39	38.6	16	17.8	16	32.0	28	25.7	35	20.8
Philosophy	3	0.5	...	...	1	1.9	...	...	1	1.1	...	...	1	0.9	...	...
Physical and health education	50	7.8	2	2.7	...	...	13	12.9	10	11.1	1	2.0	11	10.1	13	7.7
Physical sciences	446	69.3	58	78.4	35	67.3	80	79.2	51	56.7	38	76.0	78	71.6	106	63.1
Psychology	44	6.8	9	12.2	3	5.8	1	1.0	6	6.7	5	10.0	11	10.1	9	5.4
Religion	2	0.3	...	...	...	...	...	...	...	...	...	...	1	0.9	1	0.6
Social sciences	64	9.9	10	13.5	4	7.7	4	4.0	6	6.7	7	14.0	21	19.3	12	7.1
No shortage in any field	26	4.0	...	...	1	1.9	1	1.0	6	6.7	1	2.0	6	5.5	11	6.5
Number of institutions reporting	644	...	74	...	52	...	101	...	90	...	50	...	109	...	168	...

TABLE 26.—NUMBER AND PERCENT OF INSTITUTIONS REPORTING GENERAL FIELDS OF TEACHING IN WHICH THE EARLIEST NEED FOR ADDITIONAL TEACHERS IS ANTICIPATED, BY TYPE OF INSTITUTION, 1954-55

General field of teaching	All institutions		Public universities and land-grant colleges		Nonpublic universities		State colleges		Teachers colleges		Nonpublic colleges (by enrolment)					
											1,000 and over		500–999		Under 500	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Agriculture	8	1.3%	3	4.3%	...	...	4	4.1%	...	...	...	...	1	1.0%	...	...
Biological sciences	76	12.2	9	12.9	3	5.9%	17	17.3	5	5.7%	5	11.4%	16	15.2	21	12.7%
Business and commerce	143	23.0	16	22.9	13	25.5	39	39.8	9	10.2	11	25.0	24	22.9	31	18.8
Education	162	26.1	20	28.6	5	9.8	31	31.6	39	44.3	6	13.6	25	23.8	36	21.8
Engineering	70	11.3	27	38.6	13	25.5	15	15.3	...	...	7	15.9	5	4.8	3	1.8
English	302	48.6	32	45.7	19	37.3	50	51.0	46	52.3	22	50.0	51	48.6	82	49.7
Fine arts	91	14.7	8	11.4	5	9.8	27	27.6	21	23.9	4	9.1	9	8.6	17	10.3
Foreign languages	63	10.1	5	7.1	9	17.6	6	6.1	1	1.1	8	18.2	14	13.3	20	12.1
Geography	8	1.3	2	2.9	...	...	3	3.1	2	2.3	...	...	1	1.0	...	...
Health sciences	9	1.4	2	2.9	2	3.9	2	2.0	1	1.1	1	2.3	...	...	1	0.6
Home economics	26	4.2	5	7.1	2	3.9	1	1.0	3	3.4	3	6.8	6	5.7	6	3.6
Industrial and vocational arts	23	3.7	4	5.7	2	3.9	3	3.1	6	6.8	1	2.3	2	1.9	5	3.0
Journalism	6	1.0	...	...	1	2.0	...	...	...	...	1	2.3	2	1.9	2	1.2
Law	1	0.2	1	1.4	...	...	...	...	...	...	...	...	...	...	...	...
Library science	4	0.6	1	1.4	...	...	1	1.0	1	1.1	...	...	1	1.0	...	...
Mathematics	185	29.8	35	50.0	22	43.1	32	32.7	20	22.7	12	27.3	28	26.7	36	21.8
Philosophy	22	3.5	1	1.4	4	7.8	...	...	...	...	...	...	8	7.6	9	5.5
Physical and health education	46	7.4	3	4.3	...	...	12	12.2	15	17.0	...	...	6	5.7	10	6.1
Physical sciences	298	48.0	36	51.4	27	52.9	55	56.1	47	53.4	17	38.6	43	41.0	73	44.2
Psychology	53	8.5	6	8.6	3	5.9	6	6.1	5	5.7	5	11.4	14	13.3	14	8.5
Religion	26	4.2	...	...	1	2.0	...	...	...	...	4	9.1	9	8.6	12	7.3
Social sciences	257	41.4	23	32.9	21	41.2	29	29.6	40	45.5	21	47.7	56	53.3	67	40.6
All fields proportionately	24	3.9	5	7.1	3	5.9	9	9.2	3	3.4	1	2.3	2	1.9	1	0.6
All junior-college subjects	1	0.2	...	...	...	...	1	1.0	...	...	...	...	...	...	...	...
All liberal arts subjects	2	0.3	1	1.4	...	...	1	1.0	...	...	...	...	...	...	...	...
Basic freshman subjects	2	0.3	2	2.9	...	...	...	...	...	...	...	...	...	...	...	...
Many fields	3	0.5	3	4.3	...	...	...	...	...	...	...	...	...	...	...	...
Number of institutions reporting	621	...	70	...	51	...	98	...	88	...	44	...	105	...	165	...

acceptable candidates, only 30.6 percent of Group I so reported. Of Group III, 46.5 percent reported no unfilled teaching positions; of Group II, 49.0 percent; of the other groups, 62.0 to 79.8 percent.

In addition to the foregoing reports of unfilled full-time teaching positions, 70 administrative posts were reported unfilled thru lack of available qualified candidates. These were most frequently reported: deanships, 8; department headships, 2; directors of various units, such as public relations, research, placement, admissions, and special service fields, 28; psychologists, 2; such administrative posts as registrar, purchasing agent, business manager, and librarian, 20.

Estimates of Shortages

The opinions of reporting officials were sought by asking this question: During 1953-54 and 1954-55, in what fields have you observed the greatest shortage of qualified teachers? Most of the reports mentioned more than one field. Table 25, therefore, indicates the number of times a teaching field was mentioned, and the percent of all reporting institutions which mentioned each field.

This report confirms the widespread belief that the greatest shortage is in the physical sciences; 446, or 69.3 percent, of the reporting institutions emphasized this fact. Next in frequency were 187 institutions (29.0 percent) reporting an observed shortage of qualified mathematics teachers. Then followed education, reported by 16.9 percent of the institutions, and business and commerce, reported by 15.8 percent. Every teaching field was included, and only 26 (4.0 percent) of the institutions indicated that no shortage had been observed during the past two years.

In each of the groups of institutions physical sciences stood out as the field of greatest shortage. In Group I, where engineering is a major offering, it was second, and in Group IV education was second, but in the other types of institutions mathematics was the second field of concern.

Anticipated Future Needs

As a further expression of opinion, the reporting institutions were asked to indicate the teaching fields in which they foresee the earliest need for expansion of teaching staffs. This look at future needs differs somewhat, in point of emphasis, from the immediately preceding report of observed shortages during the past two years.

Table 26 shows English and physical sciences in a virtual tie (48.6 and 48.0 percent of the institutions, respectively) as the fields in which greatest expansion is anticipated, with social sciences following closely. Mathematics is fourth in frequency of mention. Then follows education, business and commerce, and fine arts. Early expansion in the other fields was not stressed by any considerable number of the reporting institutions.

The various types of institutions differ somewhat in their views of future expansion as might be expected because of their differing curriculums.

Conclusion

Little is known about the nature or the amount of the demand for teachers by the colleges and universities of the nation. Many facts are lacking which, if available, should serve in at least two important ways. One use of these facts would be by the administrative officer as he charts the future course of the institution for which he assumes leadership. A second use of facts not now available would be by the counselor of students who may have some interest in preparing for teaching in college. And a corollary, of course, would be the use by the student himself, particularly of data which would indicate to him the *nature* and the *probable number* of future opportunities in the *various fields* of teaching.

The study reported in this bulletin was a pioneer effort to undergird with factual data some of the many estimates of future needs now being made. The focus was upon the demand for full-time teachers during the past two years. Within the bounds of a sharp definition of a *new* teacher, those employed during 1953-54 and 1954-55 have been identified, some of their characteristics noted, and the sources from which they came explored. Also, a subjective evaluation of certain recently past, present, and future conditions has been sought.

The participation of a substantial majority of degree-granting institutions in this investigation would seem to suggest that facts presented in this section concerning the demands for teachers are a representative picture of the nation as a whole.

IV. The Supply of Teachers

More vexing, if possible, than the question, How many teachers will we need? are these questions: What are the sources of supply, and how adequate are they likely to be, year by year, for the next decade?

In the case of the supply of teachers for the elementary and secondary schools, substantial answers to these questions are at hand. There it is possible to identify a "qualified candidate" in accordance with legally imposed certificate requirements. In actual practice it is true, of course, that (a) these requirements vary from state to state, and (b) substandard (emergency) certificates are issued in the number about equal to the difference between the number of available qualified candidates and the number of classrooms to be staffed. Nevertheless, an annual national survey reveals in early March the total number expected to come from the colleges at the end of the current academic year, and thus become eligible to consider the teaching positions (starting the following September) which elementary- and high-school employing authorities may be disposed to offer these potential college graduates. Such regularly assembled information provides employing officials early in the placement season with an overview of the oncoming new *supply*.[1]

But no such clear-cut definition of a *qualified* candidate for college teaching is at hand. Every institution enjoys wide latitude in this matter.[2] Eligibility is determined largely by the local campus authorities. One college may consider as quite acceptable the qualifications of a candidate who would be wholly unacceptable on another campus. Again, desired (and acceptable) qualifications vary widely from field to field in the same institution. In certain fields the doctor's degree may be a "must," while in other fields the master's degree represents a quite acceptable level of preparation.

Table 10, page 138, shows the enormous range in the levels of preparation of the total full-time teaching staff in service in 1953-54. Table 22, page 148, shows a similar spread in the academic attainments of new teachers employed during 1953-54 and 1954-55. The range is wide from one type of institution to another, and from one field of teaching to another, thus showing clearly the lack of any uniform standards. And in the absence of generally accepted standards—required qualifications—the task of measuring the available *supply* would seem to be an impossible one.

Table 23, page 149, shows that just over one-half (51.5 percent) of the new full-time teachers employed during 1953-54 and 1954-55 came directly from graduate schools. It must not be assumed, however, that each of these new teachers was the recipient of an advanced degree because he came from graduate school to a full-time college teaching position; he may have been anywhere along the line, from a brief beginning of graduate study to the full completion of doctor's degree requirements.

Accurate and complete records are available, of course, concerning the number of earned degrees conferred each year, by each degree-granting institution and by field of study.[3] If the number of degrees conferred were a concise or even a general indication of the number of prospective college teachers available (at each acceptable level of preparation), the employing officials could join in a mighty sigh of relief; they would at least know the quantitative aspects of this, the first source of supply. Unfortunately, this is not the case; no meaningful index is available to indicate a relation between the total number of degree recipients and the number aspiring to enter any particular occupation.

It is widely assumed, of course, that some 60 percent or more of all doctor's degree recipients enter teaching as a profession. But

[1] The ninth annual National Teacher Supply and Demand Report will be released in March 1956. It will include a report from every college and university in the nation in which students may meet the requirements for the elementary- or high-school teaching certificate. Members of the Class of 1956 will be identified according to the particular teaching assignments they will be qualified to accept. This is not to say, of course, that all members of the Class of 1956 who are eligible to teaching certificates will actually seek teaching positions. They probably will distribute themselves among the occupational fields in the manner of their immediate predecessors, the Class of 1955, because no important change has occurred during the past year in the over-all occupational scene. This would suggest that about two of every three will become teachers in September 1956.

[2] With only modest limitations imposed upon a few of the publicly controlled institutions.

[3] The annual U. S. Office of Education report of earned degrees conferred by higher educational institutions.

this generalization is not known to be accurate today, and even if it were, it would be of little or no help to the employing officer unless he knew it applied to the *specific field* for which he needed a teacher. For example, of the 968 men and 45 women who received the doctor's degree in chemistry, or of the 479 men and 6 women who received this degree in physics in 1954, how many were interested in and actually sought college teaching positions?[4] In these physical science fields the percent of recent graduates interested in teaching today is probably only a small fraction of their counterparts in certain earlier years who were actively interested. And the recently changed conditions responsible for this shift in occupational ambitions of one group of doctor's degree recipients may have no particular force among the graduates in another field.

The Record of Degrees Conferred

Despite all these limitations, the year-by-year record of degrees conferred must be examined for possible clues to the future potential supply of college teachers. Certainly these records indicate the outside limits of possible new supply altho they do not take into account the possible changes in the occupational interests of graduates of earlier years. And to identify the possible clues it is desirable to review the records at all three levels of degree conferment—bachelor's, master's, and doctor's.

Total Bachelor's Degrees

Table 10, page 138, shows that 10.4 percent of all full-time teachers in service in 1953-54 had not yet earned the master's degree. Table 22, page 148, shows that 18.5 percent of the newly employed teachers are similarly of limited preparation. While it seems fair to assume that most persons in these groups were on the way to the master's degree, the record of total bachelor's degrees conferred in any one year would seem to have some relation to the number of prospective candidates for these positions. Far more significant, however, is the obvious fact that the total number of bachelor's degrees conferred in any one year has a direct relation to the number of persons entering upon master's degree—and later doctor's degree—programs in the early following years. Thus the figures shown in Table 27 require examination.

Prior to our entrance into World War II—in 1940—bachelor's degree recipients reached a total of 186,500. This number fell to 125,875 in 1944, then steadily climbed to 433,734 in 1950, and then just as steadily declined to

[4] And a considerable number of college employing officials would want to raise this further question: How many of this total number are adequately prepared to teach physics or chemistry to undergraduate students?

TABLE 27.—NUMBER OF EARNED BACHELOR'S DEGREES CONFERRED BY INSTITUTIONS OF HIGHER EDUCATION, BY SEX, 1938 TO 1954

Year	Bachelor's degrees conferred				
	Total	Men		Women	
		Number	Percent	Number	Percent
1	2	3	4	5	6
1954	292,880	187,500	64.0%	105,380	36.0%
1953	304,857	200,820	65.9	104,037	34.1
1952	331,924	227,029	68.4	104,895	31.6
1951	384,352	279,343	72.7	105,009	27.3
1950	433,734	329,819	76.0	103,915	24.0
1949	366,634	264,168	72.1	102,466	27.9
1948	272,144	175,987	64.7	96,157	35.3
1946	136,174	58,664	43.1	77,510	56.9
1944	125,875	55,876	44.4	69,999	55.6
1942	185,346	103,889	56.1	81,457	43.9
1940	186,500	109,546	58.7	76,954	41.3
1938	164,943	97,678	59.2	67,265	40.8

Sources: U. S. Department of Health, Education, and Welfare, Office of Education. *Earned Degrees Conferred by Higher Educational Institutions.* Circulars No. 247, 262, 282, 333, 360, 380, and 418. Washington, D. C.: Superintendent of Documents, Government Printing Office, 1948, 1949, 1950, 1952, and 1955.

U. S. Office of Education, Federal Security Agency. "Statistics of Higher Education." *Biennial Survey of Education in the United States,* 1936-38 and 1948-50. Washington, D. C.: Superintendent of Documents, Government Printing Office, 1941 and 1952.

292,880 in 1954. The 1955 figure, not yet available, will probably be slightly lower, but increased undergraduate enrolments during the past two years point to a steady, but gradual, increase beginning in 1956.

The changes in these gross totals, however, are probably no more meaningful than are the more dramatic changes in the proportion of men within the total, year by year, because 78.2 percent of all college teachers are men. Starting with 109,546 men (58.7 percent of the total) in 1940, this number dropped to 55,876 (44.4 percent) in 1944, rose to 329,819 (76.0 percent) in 1950, then fell to 187,500 (64.0 percent) in 1954. The total number of women receiving bachelor's degrees, on the other hand, sustained only a little interruption in its steady climb from 76,954 in 1940 to 96,157 in 1948. And since that time the number of women bachelor's degree graduates has

TABLE 28.—NUMBER OF EARNED MASTER'S DEGREES CONFERRED BY INSTITUTIONS OF HIGHER EDUCATION, BY SEX, 1938 TO 1954

Year	Master's degrees conferred				
	Total	Men		Women	
		Number	Percent	Number	Percent
1	2	3	4	5	6
1954	56,823	38,147	67.1%	18,676	32.9%
1953	61,023	40,989	67.2	20,034	32.8
1952	63,587	43,591	68.6	19,996	31.4
1951	65,132	46,231	71.0	18,901	29.0
1950	58,219	41,237	70.8	16,982	29.2
1949	50,763	35,224	69.4	15,539	30.6
1948	42,417	28,907	68.1	13,510	31.9
1946	19,209	9,484	49.4	9,725	50.6
1944	13,414	5,711	42.6	7,703	57.4
1942	24,648	14,179	57.5	10,469	42.5
1940	26,731	16,508	61.8	10,223	38.2
1938	21,628	13,400	62.0	8,228	38.0

Sources: U. S. Department of Health, Education, and Welfare, Office of Education. *Earned Degrees Conferred by Higher Educational Institutions.* Circulars No. 247, 262, 282, 333, 360, 380, and 418. Washington, D. C.: Superintendent of Documents, Government Printing Office, 1948, 1949, 1950, 1952, and 1955.

U. S. Office of Education, Federal Security Agency. "Statistics of Higher Education." *Biennial Survey of Education in the United States,* 1936-38 and 1948-50. Washington, D. C.: Superintendent of Documents, Government Printing Office, 1941 and 1952.

TABLE 29.—NUMBER OF EARNED DOCTOR'S DEGREES CONFERRED BY INSTITUTIONS OF HIGHER EDUCATION, BY SEX, 1938 TO 1954

Year	Doctor's degrees conferred				
	Total	Men		Women	
		Number	Percent	Number	Percent
1	2	3	4	5	6
1954	8,996	8,181	90.9%	815	9.1%
1953	8,309	7,517	90.5	792	9.5
1952	7,683	6,969	90.7	714	9.3
1951	7,338	6,664	90.8	674	9.2
1950	6,633	5,990	90.3	643	9.7
1949	5,050	4,528	89.7	522	10.3
1948	4,188	3,687	88.0	501	12.0
1946	1,966	1,580	80.4	386	19.6
1944	2,305	1,880	81.6	425	18.4
1942	3,497	3,036	86.8	461	13.2
1940	3,290	2,861	87.0	429	13.0
1938	2,932	2,502	85.3	430	14.7

Sources: U. S. Department of Health, Education, and Welfare, Office of Education. *Earned Degrees Conferred by Higher Educational Institutions.* Circulars No. 247, 262, 282, 333, 360, 380, and 418. Washington, D. C.: Superintendent of Documents, Government Printing Office, 1948, 1949, 1950, 1952, and 1955.

U. S. Office of Education, Federal Security Agency. "Statistics of Higher Education." *Biennial Survey of Education in the United States,* 1936-38 and 1948-50. Washington, D. C.: Superintendent of Documents, Government Printing Office, 1941 and 1952.

remained within the extremely narrow range of 102,000 to 105,000, while the number of men in this group has ascended to 329,819 and then plummeted to 187,500.

The impact of these changes, both in gross totals and in percent of men, upon the future supply of college teachers is yet to be assessed. Without doubt these changes will have some effect, both upon the total number of candidates for master's and doctor's degrees, and the distribution of the annual totals among the teaching fields.

Total Master's Degrees

Table 28 contains much meaningful information concerning the flow of master's degree recipients, year by year. The total in 1940 was 26,731. The low of 13,414 was reached in 1944, the same year as the low total of bachelor's degree conferments. The climb was steady to the high of 65,132 in 1951, since which date the decline has been steady to a total of 56,823 in 1954. The variation in the percent of men in these annual classes is shown in Table 28. It seems fair to assume that this variation was dictated by the violent fluctuation in the proportion of men in the bachelor's degree classes, as shown in Table 27.

Total Doctor's Degrees

Table 29 presents the record of doctor's degree recipients. The sharp dip during the war period coincides with the dip at all levels of higher education activities at that time. In 1940 this group totaled 3290. In 1942 the number of doctor's degree recipients was up 6.3 percent from 1940, despite a fall of 7.8 percent at the master's and 0.6 percent at the bachelor's degree level.

The wartime low of doctor's degree graduates was in 1946 whereas the low was reached two years earlier in both the master's and bachelor's degree classes. It must be noted, however, that the number of doctor's degree conferments has climbed steadily—without interruption—from the 1946 low to its high in 1954 whereas the master's degree total turned down in 1952, and continued its decrease thru 1953 and 1954. Also, the bachelor's degree total started to fall back in 1951 and now has a record of four consecutive years

TABLE 30.—NUMBER AND PERCENT OF EARNED MASTER'S AND DOCTOR'S DEGREES CONFERRED IN HIGHER EDUCATIONAL INSTITUTIONS, BY FIELD OF STUDY, 1953-54

General field of study	Master's degrees		Doctor's degrees	
	Number	Percent	Number	Percent
1	2	3	4	5
Agriculture	1,302	2.3%	515	5.7%
Biological sciences	1,610	2.8	1,077	12.0
Business and commerce	3,114	5.5	118	1.3
Education	26,075	45.9	1,388	15.4
Engineering	4,204	7.4	594	6.6
English	1,674	3.0	356	3.9
Fine arts	3,027	5.3	249	2.8
Foreign languages	820	1.5	230	2.6
Geography	177	0.3	51	0.6
Health sciences	1,552	2.7	202	2.2
Home economics	590	1.0	25	0.3
Industrial and vocational arts	444	0.8	14	0.2
Journalism	242	0.4	6	0.1
Law	341	0.6	31	0.3
Library science	127	0.2	7	0.1
Mathematics	706	1.3	227	2.5
Philosophy	251	0.5	103	1.1
Physical and health education	1,266	2.2	96	1.1
Physical sciences	2,374	4.2	1,686	18.7
Psychology	1,254	2.2	619	6.9
Religion	1,310	2.3	226	2.5
Social science	4,068	7.1	1,077	12.0
Miscellaneous	295	0.5	99	1.1
All fields of teaching	56,823	100.0%	8,996	100.0%

Source: U. S. Department of Health, Education, and Welfare, Office of Education. *Earned Degrees Conferred by Higher Educational Institutions, 1953-54.* Circular No. 418. Washington, D. C.: Superintendent of Documents, Government Printing Office, 1955. Table 2, p. 4-5.

of decline. The logical question, then, is two-fold: What is the lag between bachelor's and master's degrees, on the one hand, and doctor's degrees, on the other; how much is the influence of total degree conferments at one level upon the subsequent total at the next level? In other words, what is the relation between total bachelor's and total master's? between total bachelor's and total doctor's? between total master's and total doctor's degrees conferred? And how many years later is this influence most likely to be felt?

These are important questions in any attempt to weigh the impact upon future annual totals of degree candidates of the recent three-year drop of 12.8 percent in master's degree and the four-year drop of 32.5 percent in bachelor's degree recipients.

Of greater significance than total numbers —to college and university employing officials —is the *distribution* of degree candidates among the teaching fields.[5]

And of overriding significance is the *distribution of degree recipients among the occupational opportunities open to them at the time of graduation.* Along with an indication of the probable number of doctor's degree recipients each year for the next decade, college officials will want to know something about the *competition* for graduates *by field of study.*

The 1954 Class, by Field of Study

At this point it is appropriate to look at the distribution of the 1954 master's and doctor's degree classes, according to the fields of teaching for which they are prepared. The distribution is shown in Table 30.

Among the master's degree group, almost one-half (45.9 percent) are concentrated in education; no other field claims more than 7.4 percent of the total. But the distribution is quite different at the doctor's degree level. Education is second, with no more than 15.4 percent, while physical sciences claims almost one in five (18.7 percent) of all doctoral candidates. Social sciences and biological sciences together account for almost one in four, w 12.0 percent each. The drop is then abrupt psychology, with 6.9 percent, and engineerin with 6.6. percent.[6]

The comparison of this distribution of most recent class of graduates with the d tribution of full-time teaching staffs wou hardly support the theory that the latter h any influence upon the former. In other word candidates for advanced degrees seem to choo their fields of concentration without regard the prospective opportunities to teach a pa ticular subject at the college level. (Or, shou it be said, without knowledge of this latte circumstance?)

Estimate of Oversupply

Opinions of reporting officials were soug by asking these questions: During 1953-54 an 1954-55, have you observed an oversupply qualified candidates in any teaching field? I so, in what fields?

Just over one-third (35.7 percent) of th respondents indicated that no oversupply ha been observed in any field. But as many a 45.5 percent observed more than an adequat supply in social sciences; almost 3 in 10 (28. percent) observed this situation in English and about 1 in 8 institutions mentioned fin arts and foreign languages.

A comfortable supply of qualified Englis candidates was observed by as many as 44. percent of the large nonpublic colleges (Grou V)[7] but by only 23.7 percent of the smal colleges (Group VII). Social sciences candi dates seemed to be plentiful to 54.2 percen of the reporting state colleges (Group III) but to only 30.9 percent of Group I. In fine arts the range was from 18.4 percent in Group V to 7.8 percent in Group II. In foreign languages the range was from 19.6 percent in Group II to 3.4 percent in Group IV. Further details are shown in Table 31.

The Outlook in General Education

The major objective of the study reported in this bulletin was to assemble factual data. It

[5] A timely illustration of this point is found in the five-year change in the makeup of successive bachelor's degree classes of qualified candidates for the teaching of the various high-school subjects. As a whole, this group decreased 40.8 percent from 1950 to 1955, but the *range* in this decline was from 12.1 percent in potential teachers of art to 57.0 percent in potential teachers of science.

[6] It is interesting to note that engineering and English vary only a little in the percent of the total each of these fields claims at the master's and at the doctor's degree levels. In contrast, education falls from 45.9 to 15.4 percent; biological sciences jumps from 2.8 to 12.0 percent; physical sciences from 4.2 to 18.7 percent; mathematics from 1.3 to 2.5 percent.

[7] For description of institutions according to group, see Table 1, page 131.

TABLE 31.—NUMBER AND PERCENT OF INSTITUTIONS IN WHICH AN OVERSUPPLY OF QUALIFIED TEACHERS WAS OBSERVED DURING 1953-54 OR 1954-55, IN EACH FIELD OF TEACHING, BY TYPE OF INSTITUTION

General field of teaching	All institutions		Number and percent of institutions reporting teaching field													
			Public universities and land-grant colleges		Nonpublic universities		State colleges		Teachers colleges		Nonpublic colleges (by enrolment)					
											1,000 and over		500–999		Under 500	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Agriculture	1	0.2%	...	...	...	...	1	1.0%	...	...	...	...	...	...	...	...
Business and commerce	2	0.3	...	...	...	...	...	...	...	...	...	...	1	0.9%	1	0.6%
Biological sciences	6	1.0	...	...	1	2.0%	2	2.1	...	...	...	...	1	0.9	2	1.3
Education	43	7.0	3	4.4%	2	3.9	15	15.6	8	9.2%	2	4.1%	4	3.8	9	5.8
English	177	28.9	17	25.0	18	35.3	24	25.0	23	26.4	22	44.9	36	34.0	37	23.7
Fine arts	78	12.7	11	16.2	4	7.8	9	9.4	9	10.3	9	18.4	14	13.2	22	14.1
Foreign languages	75	12.2	10	14.7	10	19.6	9	9.4	3	3.4	6	12.2	16	15.1	21	13.5
Geography	2	0.3	...	...	...	...	2	2.1	...	...	...	...	...	...	...	...
Home economics	1	0.2	...	...	...	...	1	1.0	...	...	...	...	...	...	...	...
Journalism	1	0.2	...	...	1	2.0	...	...	...	...	...	...	...	...	...	...
Mathematics	1	0.2	...	...	...	...	1	1.0	...	...	...	...	...	...	...	...
Philosophy	18	2.9	1	1.5	...	...	...	...	...	...	2	4.1	6	5.7	9	5.8
Psychology	7	1.1	...	...	1	2.0	3	3.1	3	3.4	...	...	...	...	...	...
Physical and health education	19	3.1	...	...	...	...	5	5.2	9	10.3	...	...	2	1.9	3	1.9
Physical sciences	4	0.7	1	1.5	...	...	...	...	...	...	1	2.0	1	0.9	1	0.6
Religion	12	2.0	...	...	1	2.0	...	...	...	...	...	...	7	6.6	4	2.6
Social sciences	279	45.5	21	30.9	22	43.1	52	54.2	41	47.1	26	53.1	53	50.0	64	41.0
Miscellaneous	1	0.2	...	...	...	...	...	...	...	...	...	...	1	0.9	...	...
No oversupply in any field	219	35.7	37	54.4	19	37.3	30	31.3	33	37.9	15	30.6	28	26.4	57	36.5
Number of institutions reporting	613	...	68	...	51	...	96	...	87	...	49	...	106	...	156	...

TABLE 32.—PRESENT AND FUTURE OUTLOOK FOR TEACHERS IN GENERAL EDUCATION PROGRAMS IN 646 DEGREE-GRANTING INSTITUTIONS, 1954-55

Item	All institutions		Type of institution													
			Public universities and land-grant colleges		Nonpublic universities		State colleges		Teachers colleges		Nonpublic colleges (by enrolment)					
											1,000 and over		500-999		Under 500	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Have you, during the past five years, sought a candidate for the teaching of "general education" courses?																
Yes	179	27.7%	16	22.5%	9	17.0%	38	37.3%	44	48.4%	9	18.8%	30	27.0%	33	19.4%
No	467	72.3	55	77.5	44	83.0	64	62.7	47	51.6	39	81.2	81	73.0	137	80.6
Total	646	100.0%	71	100.0%	53	100.0%	102	100.0%	91	100.0%	48	100.0%	111	100.0%	170	100.0%
If so, did you find satisfactory candidates available?																
Yes	105	59.6%	11	68.8%	5	55.6%	19	50.0%	24	55.8%	5	55.6%	20	66.7%	22	66.7%
No	72	40.4	5	31.2	4	44.4	19	50.0	19	44.2	4	44.4	10	33.3	11	33.3
Total	178	100.0%	16	100.0%	9	100.0%	38	100.0%	43	100.0%	9	100.0%	30	100.0%	33	100.0%
Do you anticipate the addition of one or more teaching staff members to be assigned to your "general education" program?																
Yes	206	33.4%	16	23.9%	10	20.8%	38	38.8%	55	63.2%	12	25.0%	33	32.0%	42	25.5%
No	410	66.6	51	76.1	38	79.2	60	61.2	32	36.8	36	75.0	70	68.0	123	74.5
Total	616	100.0%	67	100.0%	48	100.0%	98	100.0%	87	100.0%	48	100.0%	103	100.0%	165	100.0%
Do you feel that the "general education" movement in undergraduate colleges justifies an organized effort by graduate schools to provide doctoral programs of broader than the traditional pattern?																
Yes	370	69.3%	32	60.4%	23	57.5%	64	74.4%	61	75.3%	23	57.5%	71	76.3%	96	68.1%
No	164	30.7	21	39.6	17	42.5	22	25.6	20	24.7	17	42.5	22	23.7	45	31.9
Total	534	100.0%	53	100.0%	40	100.0%	86	100.0%	81	100.0%	40	100.0%	93	100.0%	141	100.0%

also seemed appropriate, however, to request expressions of opinion on such broad topics as observed shortages and oversupply, and outlook for future expansion of staff by field of teaching. Many other pertinent questions could have been raised, but only one more was selected. It is related to the growing effort to integrate broad areas of learning at the undergraduate level. Popularly, it is called the *general education* movement—the desire of curriculum builders to extend the well-roundedness of the education of all undergraduate students by the use of teachers who themselves have broad, integrated backgrounds of formal preparation. Such teachers, it is said, are perhaps best prepared and most strongly motivated to point up the interrelationships among the various general fields of study.

Impeding this movement, it seems, has been the lack of qualified teachers in the desired numbers. Since this developing situation has close relation to the over-all problem of supply and demand, a series of four questions was included in this study. The attitude of responding officials is indicated in Table 32.

About 7 of every 10 respondents answered Yes to the question, Do you feel that the general education movement in undergraduate colleges justifies an organized effort by graduate schools to provide doctoral programs of broader than the traditional nature? Such affirmative responses came from 3 of every 4 in Groups II, IV, and VI.

On the average, only about 1 in 3 (33.4 percent) of the responding institutions actively anticipates the addition of teachers to be specifically assigned to the development of this kind of program. In Group IV (teachers colleges), however, about 2 of every 3 (63.2 percent) expect to do so, while in Group II only 20.8 percent indicated that such a step is in their planning.

In recent years only about 1 in 4 (27.7 percent) of the responding institutions has been in the market for teachers to be assigned to this area. Of these, about 3 in 5 were successful in finding satisfactory candidates.

Conclusion

During the past two years graduate schools were the source of the supply of just over one-half of all new full-time teachers. Unfortunately, there is no established channel thru which the future adequacy of this reservoir can be measured. While the numbers of degrees granted at each level—bachelor's, master's, and doctor's—are known, these figures are not a concise measure of the numbers available for teaching positions, either by field or as a whole. Completion of the requirements for an advanced degree does not, in itself, indicate either that the degree recipient is (a) qualified to become a teacher, or (b) interested in teaching as an occupation.

Within the past decade the total number of bachelor's degrees conferred per year has ranged from 125,875 in 1944 up to 433,734 in 1950 and back down to 292,880 in 1954. The percent of men within this group has ranged from 43.1 in 1946 up to 76.0 in 1950 and then back to 64.0 in 1954.

Total master's degrees have ranged from 13,414 in 1944 up to 65,132 in 1951 and back down to 56,823 in 1954. The percent of men within this group has ranged from 42.6 in 1944 up to 71.0 in 1951 and then back to 67.1 in 1954.

Total doctor's degrees conferred have shown a different year-by-year pattern. From a low of 1966 in 1946, this number has advanced, without interruption, to a total of 8996 in 1954. The impact of recent fluctuations in the bachelor's and master's degree groups upon the future production of doctoral candidates is not yet known.

The distribution of master's and doctor's degree recipients in 1954 by fields of study bears little relation to the distribution of the total full-time college and university teaching staff, or to the distribution of new full-time teachers employed in 1953-54 and 1954-55, by field of teaching.

An estimate by employing officials of the oversupply during the past two years indicates a comfortable margin in some teaching fields, and none in others.

In a meaningful number of institutions the employing officials are not content with the traditional pattern of doctoral study as satisfactory preparation for college teaching, particularly in areas requiring the integration of subjectmatter fields.

V. A Look at the Future

College and university officials everywhere know that one of their most difficult tasks of the next decade will be to provide a teaching staff, adequate both in number and in quality, to meet the needs of students who will seek admission. Buildings and other physical facilities must, of course, be provided. The demand for special services will expand, and competent personnel must be available to assume a greater variety of administrative responsibilities. But teaching—the classroom program—will remain the heart of the educational enterprise.

As 1956 approaches, colleges and universities are in an unfavorable position from several points of view. First, the rate at which the call for their services will expand is yet to be determined, but a vast increase in enrolment within a decade is foreseen. Second, the preparation of the corps of full-time teachers now in service does not indicate a full readiness to serve adequately the present student body. Third, new full-time teachers employed during the past two years tend to pull down rather than to up-grade the average level of preparation of the whole staff. Fourth, many of the institutions have no established method of encouraging further preparation by staff members not yet adequately prepared. Fifth, the full-time staff now in service is, on the average, mature; the median age is 43.1 years; as many as 25 percent are beyond 52.5 years of age. Replacement, as well as additions, is therefore in prospect on a substantial scale. Sixth—and surely not least—is the unfavorable position of almost all higher education institutions in their ability to compete in the open market for the services of the qualified persons most desired for classroom teaching.

But a further handicap to effective planning is the lack of needed data—information about existing conditions from which future trends can be projected and justifiable changes made in present practice.

As an example, what assumptions underlie the present utilization of both plant and personnel? Is the prevailing student-teacher ratio to be maintained? If not, on what objective evidence may it be modified, either up or down?

On what basis does the present ratio of men to women rest? What is the nature of the fields of teaching which might use a higher percent of women?

What factors dictate the distribution of the total staff among the four professional ranks? And how are salary levels to be geared to these ranks?

To what extent can the use of part-time and temporary teachers be justified? Can the institutions maintaining graduate schools more closely relate the use of graduate students in their instructional programs to the preparation of future college teachers?

What constitutes a satisfactory program of preparation for college teaching? What responsibility rests with the undergraduate school? the graduate school at the master's degree level? the graduate school at the doctor's degree level?

What are the criteria for selective admission to preparation for college teaching? Is there agreement on these criteria between administrators of undergraduate colleges (the employers of many beginning teachers) and graduate school faculties?

Where does (or should) effective recruitment of prospective college teachers begin? By whom is it conducted? What facts should be in the hands of the person who undertakes to counsel a student who is or who might become interested in college teaching? What facts not now available should be assembled to support and improve the work of the counselor? Just what are the arguments in favor of college teaching? And what is the outlook for strengthening these arguments?

Almost one-half (48.5 percent) of the new teachers employed during the past two years came from sources other than graduate schools. More than 1 in 5 (22.2 percent) came from other educational work, which indicates that colleges are already drawing substantially from high-school staffs. Many college officials frankly express a preference for candidates with successful experience at the high-school level. But the high schools now face a period of rapid expansion and their primary source of supply of teachers has dwindled steadily

since 1950. Even now they face critical shortages in exactly the same teaching fields—the physical sciences and mathematics—as are beginning to plague the colleges.

And high schools everywhere will seek to continue the improvement of their standards. In four states the master's degree is required for the standard certificate, but even more significant is the steady advance in local standards—more and more districts are gearing their salary schedules to the professional improvement of the teacher. And thus the competition for the superior teacher—the one of proved ability—will continue to sharpen.

In a very real sense, the entire educational system is entering upon a new era. Many problems must be viewed in new dimensions. The need for research becomes more evident day by day. Many of the needed basic facts are not yet available.

It has been the ambition of this pioneer study to plumb only a few of the areas inviting study. A comprehensive investigation of supply of and demand for college and university teachers must be supported by systematic studies on every campus. And, unfortunately, many campuses are not equipped to compile the needed data.

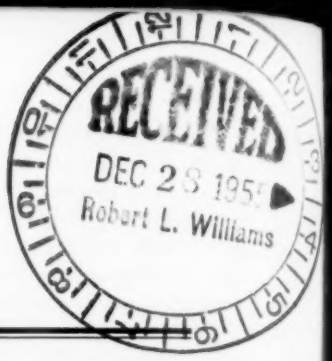
Many college officials, after assembling the data requested in this brief study, expressed the intention to compile such reports annually. Such action will lay the groundwork for more meaningful investigations to follow.

To an extent seldom if ever equaled in our history, educators, state officials and the public at large are interested in the programs and organization of American higher education. The fact that the Council of State Governments was directed to undertake a study of higher education in the forty-eight states is but one indication of widespread interest in the subject as an important area of state responsibility. . . .

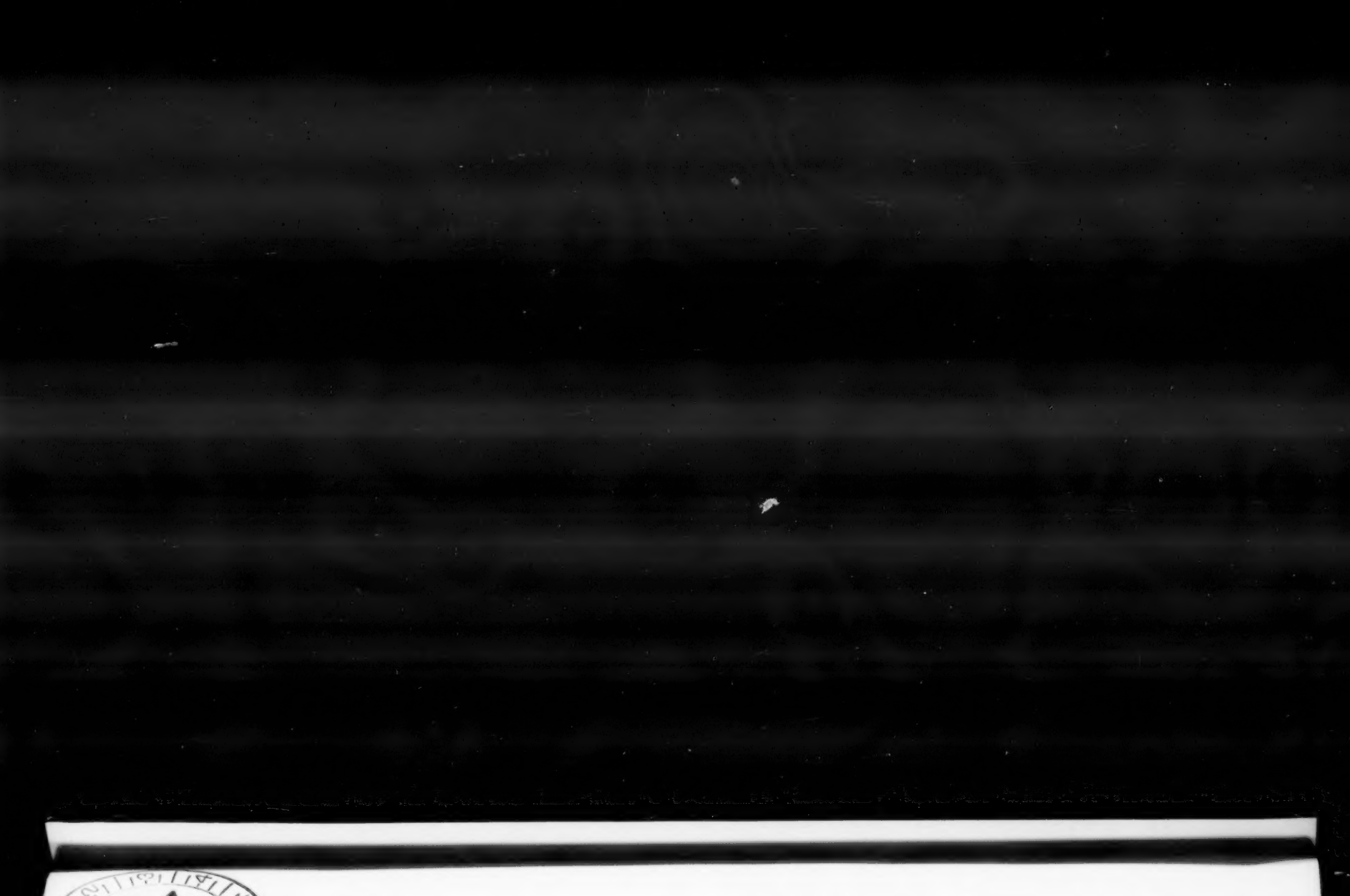
In general terms, the findings of the survey are these:

1. Public demand for the services provided by institutions of higher education will continue to mount; expenditures of institutions of higher education will continue to increase.
2. Public funds will continue to supply the major share of income received by institutions of higher education.
3. Close coordination of the programs and activities of state institutions of higher education is urgently needed in order that available resources and facilities may be utilized most effectively.

—Council of State Governments. *Higher Education in the Forty-Eight States.* Chicago: the Council, 1952. p. xiii, 2, 4, and 5.



THE serious problems which confront higher education today only foreshadow the even greater problems of the years ahead. Accelerating social change, increasing demands for world citizenship, pyramiding technological developments, greater emphasis upon ethical ideals—all create demand for qualities in faculty personnel now too rare on college and university campuses. . . .

If these quantitative and qualitative demands are to be met, immediate steps must be taken to give better preparation to larger numbers of prospective faculty members; to improve the present methods of recruitment, selection, and placement of faculty personnel; to develop and expand inservice education programs; and to enhance the working conditions of all who carry the responsibility for post-high school education. . . .

The task ahead of providing faculty personnel adequate for the kind of higher education our Nation requires places a tremendous responsibility upon our democracy. That responsibility is one which must be borne collectively by public and private agencies, by lay and professional citizens, by teachers and administrators. Only pooled efforts can meet the challenge—the challenge to improve democracy by improving higher education.—President's Commission on Higher Education. *Staffing Higher Education.* Higher Education for American Democracy, Vol. 4. Washington, D. C.: Superintendent of Documents, Government Printing Office, 1947. p. 61, 63.